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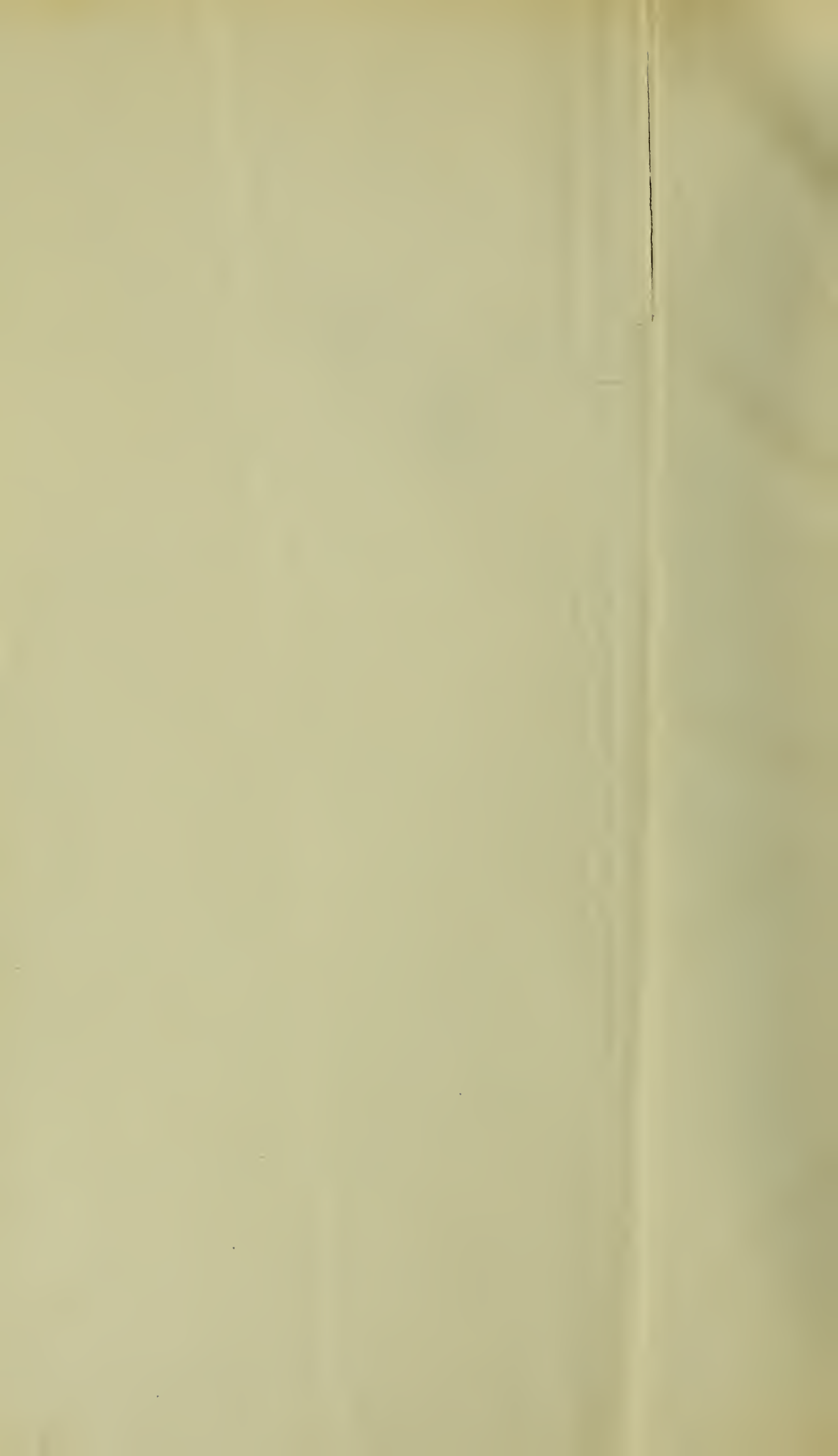
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“The empire of man over material things, has for its only foundation the Sciences and Arts.”—LORD BACON.

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## Illustration.

DESIGN FOR SCHOOLS.

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## AN AUDIT AND A FORECAST.

THE space of one year in Ireland affords but a small field to estimate the extent of our progress in all that is conducive to our social well-being. It is evident that we are advancing, though at a rather slow pace compared with the sister king-

dom. For the greater part of the last twelvemonth a commercial depression has existed, increasing in intensity as the year advanced towards its close. This depression has affected many interests, and, of course, has not left the building interests untouched. Since the great staple industries of this country have declined, and in several instances been extinguished, particularly in connection with this capital, the building trades have to a large extent become representative ones in Dublin, and for several years have afforded considerable employment to our artisan population. During the last quarter of a century at least the building industry in the capital has been, on the whole, rife, as the growth of our townships and suburban districts will prove; and, notwithstanding the present temporary depression, we have no doubt but our building industries will before long show signs of returning animation.

In this city, like several other cities, a large number of our domestic dwellings are builders' houses, and not architects' houses; and of course our architects are not benefited, but often injured, and in more ways than one. Loss of practice and want of practice are serious matters; but the profession of architecture is otherwise injured by bad design and construction. We have, to be sure, in our midst several respectable builders, who perform honest work; but most of their houses are of the stereotyped kind in plan, with odd departures in externals. Speculative building within the last few years has been moving apace in this city, and our architects must be credited with assisting in this direction, not often wisely or well. The profession, however, labours under difficulties in this country only known to those who are resident, and to many practitioners the field is a rather bleak and blank one. Abuses or irregularities exist in connection with practice, and they are destined to grow, to the injury of the whole profession, if our architects will not study their own interests by unity and organisation.

A twelvemonth has nigh gone by since a conference was held of the Irish Institute, and a certain number of resolutions were passed; but we regret to say the good object has not been followed up as it ought to have been. Whether our Irish architects become members of the Royal British Institute in London or not, the local body in Dublin should be preserved intact, and the members should be proud of maintaining it, and adding to its vitality and strength. The council of the Institute, in the beginning of the year just closed, announced a number of prizes, but we have not learned the result of the competition, or at least to what extent it was a failure or success. The president of the British Institute tendered some honest advice to our native architects, which is worthy of consideration; but co-operation, to be useful and serviceable, must have a representative character in this country.

Our old native literary, scientific, and art bodies in this city call for no particular and extended notice. The Royal Dublin Society has during the year pursued its course under the reorganised constitution; but the projected new Science and Art Museum still exists on paper, and the Government authorities are inclined to throw the blame of the delay on the interested at this side of the channel. The Royal Irish Academy maintains its reputation, and its "Transactions" are equal in interest and value to any in the sister kingdom. We recorded more than once our opinion respecting the good fight it made to preserve its entity from being swallowed up by South Kensing-

ton directorate, and the fairness which it displayed in meeting the Government more than half way in respect to the scheme of the Science and Art Museum. One of the trusts of the Academy,—the Cunningham Prize Fund,—was the subject of some law proceedings during the late year, but an amended scheme has been brought up and agreed to by the council, which we trust will work well, and be found to carry out the intentions of the testator for the benefit of the literature of his native land.

The yearly exhibition of the Royal Hibernian Academy was of the average character; but while the walls were hung with several excellent paintings of native and non-resident and English artists, we were sorry to see such a meagre display in the domain of sculpture and architecture. The statuary and sculpture exhibits were almost nil, and the architectural drawings very few, and of these few fewer again exhibited any striking originality in design or excellence in execution. Surely our architects could put in a better appearance at the annual show in Abbey-street. We desire to see the noble intentions of Francis Johnston fully carried out, and the Royal Hibernian Academy becoming truly a school of painting, sculpture, and architecture.

The Civil Engineers of Ireland still maintain their institution, and some good papers are read at its meetings; and, viewing the surroundings of this body, we cannot see why their professional brethren, the architects, are not spurred to keeping their body in a state of activity.

The meeting of the British Association in August last was an event which brought together a great aggregate of intellect; and Ireland, on the whole, has reason for feeling proud of the part she contributed to make the gathering what it proved to be, a success. Dublin—civil, ecclesiastical, and professional—was fairly represented; and her hospitality, municipal and institutional, was fully equal to the occasion. This great gathering in the capital of Ireland brought together artists and scientists, archæologists, antiquaries, architects, and engineers, and gave each and all, and others outside, an opportunity for an interchange of ideas, which ought to have been productive of good results.

The improvements now being carried out under the Port and Docks Board, and in part by the Corporation, for improving the port and harbour of Dublin, and for giving better facilities for the traffic from north and south over the Liffey, were prosecuted with steady regularity during the late year. The new Swing Bridge near Beresford-place is approaching towards completion, and the



new Carlisle Bridge is being pushed on with expedition. The contractor for both undertakings is performing his work creditably. The Corporation of Dublin, it must be admitted, labours under some disadvantages in a financial point of view, but their best friends must admit that they have been remiss in respect to the sanitary condition of the city, the purification of the Liffey, and their want of earnestness in dealing with the plague-spots, and of paving the way for putting the provisions of the Artisans and Labourers' Dwellings Act in force. They have sought for new powers by promoting new bills to raise funds, while they have neglected in more than one instance in enforcing the powers in their hands. We care not again to point out many shortcomings in the past bad management, and an extravagant waste of moneys. The remedy lies in a better municipal representation; and so long as the ratepayers remain indifferent to interests that vitally concern them, so long, we fear, will municipal abuses exist.

As usual, last year we devoted space to a review of the operations of the Irish Board of Works in different parts of the kingdom, and we again pointed out the facilities that exist under the Board for obtaining funds for carrying out improvements, particularly in respect to works of drainage, and providing a better class of dwellings for farmers and agricultural labourers. Later again in the year we devoted a series of articles in review of the Report of the Royal Commission appointed to enquire into the administration of the Board of Works. We trust our impartial review has not been without some good effect. If even only a portion of the recommendations of the Parliamentary Committee are carried out, an improvement will soon be visible. In our notices we endorsed those recommendations which we considered were absolutely necessary to the future good administration of the Irish Board of Works.

It is unnecessary, we think, to enumerate the principal public works of importance commenced, or even completed, during the late year, as the record will be found in our volume ending with the year just closed. The completion of Christ Church Cathedral and its opening in May last may, however, well claim an additional notice. It is not our desire to enter into the dispute that has cropped up between certain churchmen and laymen respecting high or low church ornamentation, neither will we now revive the contention on the part of different schools of architects as to the right or the wrong of the architect in certain innovations or revivals. The cathedral, in common parlance, is now "restored," the workmanship and the materials are good, the architect as an architect has done his duty well, and in matters of opinion he has probably elected to be guided by his own convictions. The vexed question of restoration, simple or complex, suggests a discussion the scope of which would be out of place in this general running notice. We are glad to see the work at Christ Church finished, and Dublin has every reason to acknowledge her lasting indebtedness to the wealthy and generous citizen-trader who contributed the funds. We hope that the acts and deeds of the restorers of St. Patrick's and Christ Church Cathedrals will find during the remainder of the century more imitators.

We have added to our Dublin townships

during the late year a new northern one, the formation of which we advocated; and we are much astray if its future will not realise all our expectations as to its utility, and the effect it will have in improving a too long neglected and very healthful district. There is a large amount of work before the new commissioners, and the most important of all is the drainage of the district, which cannot be much longer neglected.

The subject of Technical Education—which has always in this journal been continually discussed in season and out of season—received during the late year an acknowledgment in the sending of a number of artisans to the Paris Exhibition to report upon works and trades in which the members deputed are respectively interested. Although the movement was not responded to on the part of large employers to the extent which its importance demands, yet we are sanguine that when the reports are published the Irish artisans will be found to favourably compare with their brothers of the sister kingdoms.

We are glad to report that very few strikes or locks-out occurred in Ireland during the late year, and that the relations between employers and workmen are, on the whole, of a friendly character.

Our art schools in Dublin, Cork, Belfast, and other places, in connection with the South Kensington Department, are maintaining their efficiency, and in every yearly national competition the Irish schools—and particularly the old Dublin Society School of Art—are conspicuous in the standard of excellence, compared with other schools outside the country. It behoves our young artisans to avail themselves of the facilities afforded by these schools of art in acquiring a respectable knowledge of drawing—free-hand and mechanical; and as regards the members of the building trades, architectural drawing is a necessity, for without it the workman is not technically educated. As we said last year we repeat again, if our native artisans will not perfect themselves in the knowledge that is indispensably necessary for the due prosecution of their handicraft, foreign labour will sooner or later supplant, to their own great loss and the discredit of their country.

We have still to deplore the want of a building act in Dublin, to counteract admitted abuses in various directions. The Metropolitan Board of London have during the late year carried their amended building act through Parliament, and good results have already followed in its wake. The nefarious practices of jerry builders in the suburban districts are to a great extent put a stop to; and in some flagrant instances we were glad to see orders were given for pulling down houses and walls constructed in violation of the provisions of the act. Here in Dublin, abuses are, we fear, permitted in the construction of party walls, as well as in the construction of other walls of insufficient thickness. In our suburban districts, too, we have recently witnessed vile materials in the composition of the mortar; and much green timber is used, and a large quantity for floors and roofs below the bearing strength required for its position.

Interest is still manifested in the sister kingdom for the better preservation of National Monuments; and Sir John Lubbock's efforts in promoting legislation are entitled to the thanks of all lovers of antique architecture. Our readers are aware that the

care of a number of our ancient buildings in this country has passed into the hands of the Irish Board of Works, and the superintendent under that body is engaged in seeing to their preservation by needful repairs. The work needs careful forethought—practical knowledge and wise counsel betimes,—for the question of "Restoration" has of late grown into a vexed subject of importance. Churchmen, ritualistic and otherwise, have of late years been seized with a mania for restoration, and Vandalism instead of preservation has been the result. The Royal Historical and Archaeological Association of Ireland, since its foundation, and under the discriminating mind of the Rev. Jas. Graves, has performed good service in more directions than one in the conservation of our National Monuments. The illness for some time of the reverend antiquary has been a loss to the society and the cause of archaeology. The association, we must not forget to note, has had its head quarters changed from Kilkenny to Cork; and let us hope that its future career will be sufficient under its new guidance to at least sustain its past reputation.

In the past year death has removed a few in the professional ranks from our midst, the brief records of whose services will be found in our last volume. Among these was one full of years, honours, and services—Sir Richard Griffith, Bart., C.E.—a centenarian almost, and a link connecting the last century with the present. In William Fogerty, F.R.I.B.A., we lost a young and rising architect of promise, who, had he lived, we have little doubt would have reached a distinguished place among our native architects. Towards the close of the year a native artist of reputation passed away in the person of Thomas Bridgford, R.H.A. Among our builders was Mr. Robinson Carolin, of the late firm of J. and R. Carolin, Lower Abbey-street—a firm that dates back to the early part of the century, if not further, and for long years engaged in Government works and public offices.

There are a variety of works in progress throughout the provinces, inclusive of ecclesiastical edifices for the Catholic community; the latter, of course, owing to the voluntary nature of their funds, are perforce long years in course of construction. Belfast is still yearly adding largely to its street architecture, and some good buildings and warehouses of a substantial and ornate character have been erected there. Derry, too, has lately been following in the wake, and her local architects are creditably acquitting themselves. A late visit to Cork has convinced us that the spirit of improvement has not been sleeping on the waters of the Lee, and that even in a sanitary direction as well as in a purely architectural one, Cork has been latterly awakening to a sense of her admirable position. Queenstown is rapidly improving, and the more she improves the greater will be the benefit not only to Cork but to the country at large. Dublin, though slow, is gradually adding to her public buildings, and the architecture of her banks, insurance offices, and large warehouses is greatly in advance in design over those erected a quarter of a century since. Dublin unfortunately lags in a sanitary direction, and her Corporation is very much behind other municipal bodies in this respect. The voluntary efforts of the Sanitary Association have, it must be admitted, been of benefit; and the Public



Health Committee, though part and parcel of the civic body, is more alive to the urgent sanitary needs of the time than they have been in previous years. We care not to enter upon the vexed question of rates and taxes—always heavy—too heavy, alas!—in this city. We trust the Corporation will in future be inspired by better counsel, and will be more inclined in the future than in the past to hold itself amenable to the public will. While we have not hesitated to often condemn the municipal bods for its shortcomings, we have never allowed ourselves to be led by the nose by exaggerated statements emanating from this or the other side of the Channel. Dublin is bad enough and dirty enough, in all conscience; but she will not be made worse or better by highly-coloured statements. What is wanted is the simple, unvarnished truth, free from exaggeration and the animus of professional jealousies. Dublin wants more of the sanitary engineer and less of the medical theoriser; all sanitarians should hail the administration of preventive medicine in preference to curative physic.

In regard to our water and gas supply—the former, compared with other towns, is good, and we have always held it far purer and preferable to our canals; but better arrangements are needful for its constant supply and purity in the service of the poor. Gas is still too dear with us, and the company should be prepared to make further concessions, and quite apart from any dread of the electric light making headway. If the electric light is ever made a success for domestic lighting as well as public illumination, of course a great revolution would be effected; but we think that shareholders at present and for some years to come need not have much fears. It is probable, however, as far as public lighting is concerned, that the electric light will become more or less general in a short time. The absence of heat will militate against its general adoption or use in a domestic way. Both gas and water are indispensable—the latter element is absolutely so, and we need it cheap in price as well as pure in quality.

Looking ahead into the future as far as the mind can penetrate, guided by the realisation of the past, there is much to anticipate in the fields of science. The spirit of invention is certainly active, and marvels have been so plentiful within the last few years we almost cease to marvel at aught that the genius of man creates or re-creates. The latent powers, the manifestation of which now surprises the world, have always existed; but the knowledge and skilled cunning that were necessary to develop and apply them has only been slowly acquired after repeated failures. With the aid of science we are building up wonderful systems—some understood, some half understood, and others not yet understood, and the last as well as the first are being harnessed in the service of mankind. Well might we exclaim “Where, whence, whither!” only we are forced to move on, or allow ourselves to be overtaken by younglings of greater enterprise, though, perchance, of less caution. There is no standing still: we must work, and query as we proceed, till that mortal coil of which the great dramatist speaks is shuffled off for ever and aye.

A few more words, and our rapid view and review will close. We would bespeak the good will and increased support of the professional and general reader for honest efforts

in their service, for it has been the design of the conductors of this journal to appeal to a much larger circle than what its title indicates. We have not truckled to any clique, faction, or mere party for financial considerations; and, though we have betimes been obliged to utter unpalatable truths, they were expressed with the intention of benefiting the many in contradistinction to serving the few. It will be our endeavour in the future to make our pages in the different fields of its advocacy readable, instructive, and representative. The IRISH BUILDER enters to-day on its twenty-first year, and, anticipating its majority with credit, we ask our readers to reciprocate towards it the sentiment in the spirit we wish them—A HAPPY NEW YEAR.

#### THE CORK SCHOOL OF ART.

THE annual distribution of prizes at this school took place on the 23rd ult., in the Royal Cork Institution. It is very satisfactory to see this school not only sustaining, but increasing, its reputation. The want of a new building suited to the requirements of the school is a want of long standing which, we trust, will soon be supplied. The following is the report of the head master (Mr. James Brennan, R.H.A.). The prizes, which were numerous, were distributed by the Mayor:—

The number of students on the roll of the school for the year was 260—being an increase of 21 over the number for the preceding year. The number of works sent to South Kensington for examination was 780, and the number of prizes awarded was 14—an increase of 5 over last year. When the severe character of the examination is taken into account, the standard of merit being considerably raised, and the style of work very much changed in accordance with instructions from South Kensington, this increase shows a fair improvement in the work sent forward. In the second grade examinations 37 students were successful—being an increase of 13 over last year. The following students completed all the subjects of the second grade, viz.:—Lucy Kertland, Jervis Biggs, Sarah A. Addey, and Albina Mahony. In the advanced local art examinations, in which a group is required to be painted from nature in 25 hours, Mrs. E. M. Sharman Crawford was awarded “good” for her study. Eighteen students attended the science classes, and of these 11 were successful in passing the examinations, two of them receiving Queen’s prizes. Professor G. Armstrong very kindly renewed his prize of a silver medal for an illustration of an original subject. “Evening” was the subject selected. The number of works sent in for competition was 7, and the medal was awarded to Mrs. E. M. Sharman Crawford. A gentleman interested in art education also offered a silver medal for the best head, shaded from life. Five competed, and the medal was awarded to Miss Sara Atkinson. Your worship most kindly placed the sum of £10 at the disposal of the committee, to be competed for as Mayor’s prizes. The number of drawings sent in for competition was 104—being 32 more than last year. The awards were made by an examiner of the Science and Art Department, and he speaks most favourably of the character of the works sent forward. These Mayor’s prizes do a great deal of good, as they help to keep up that spirit of competition throughout the year which is so essential to the well-being of any school. Mr. Jeremiah F. Mullins competed this year for a prize offered by the Coachmakers’ Company of the City of London for the best essay on coach-painting. The competition was open to the United Kingdom. He obtained the first prize of a silver medal, certificate, and £12. It may not be out of place to mention the success of Mr. Richard H. A. Willis. In my report last year I stated that he had obtained admission to the training class at South Kensington. He has this year, I am happy to say, gained a gold medal in the competition there; and I think we may, at least, fairly congratulate ourselves on having laid a good foundation for his great success in so short a period. I trust, before we meet again (as I hope we shall for our next distribution of prizes) this time twelvemonth, that instead of making, as I have done for so many years, a periodical complaint of the great inefficiency of the building in which the School of Art is situated for art purposes, I shall have the pleasure of congratulating the students on the prospect of a new school. I believe

we may confidently look forward to such a result from the great interest that has been awakened about the school. In conclusion, I must testify to the increased earnestness and diligence of the students.

#### THE SANITARY CONDITION OF TENEMENT HOUSES.\*

QUITE properly, tenement houses are the object of great solicitude and of constant care on the part of health authorities everywhere. Overcrowding, filthy condition, deprivation of sunlight and fresh air and water supply and drainage have all received a good share of notice. It seems to me, however, that the pre-eminent importance of proper interior drainage—of the water-closets and sinks and slop-hoppers, of soil-pipes and waste-pipes and cellar drains, although by no means ignored, have not had that pre-eminent attention which the best interests of health demand. The other items should not receive less attention than they do, but the plumbing of these houses should receive more attention than it does.

Many of the evils of overcrowding, bad ventilation, and insufficient lighting, are enormously aggravated by the serious accompaniment of bad plumbing work. Plumbing work in houses of this class is very apt to be bad in two ways—bad in arrangement and bad in execution. We cannot too severely reprehend the admission of foul drain air into a large, sunny, and well-ventilated house, occupied by a dozen people. When it is admitted to a close, dark, stuffy tenement house, sheltering hundreds of inmates, the evil is increased far more than in proportion to the number of the occupants. If it is important to the welfare of society that the more fortunate classes should be protected, it is far more important that those who are utterly powerless to help themselves should have the very best service that their official guardians can afford them. We may trust the educated members of the community to learn sooner or later, under the sharp discipline of death, disease, and ailing condition, what is necessary to their welfare in this regard. We may be very sure, too, that having once learned it, they will adopt sufficient measures of self-protection. With the tenement house class we can have no such hope. As a rule, they will live like pigs, and die like sheep, unless they are compelled to live decently and are prevented by the strong protection of authority against evils over which they have no control, but to which, under the present system, they are constant victims.

A great outcry is raised against the bad sewers of the older parts of all our cities, and they are bad enough to justify the outcry. At the same time, the houses connected with them get their bad effect only at arm’s length, and they need not get it at all. As at present arranged, there is no doubt that they do receive an injurious amount of sewer gas from them. At the same time, there is just as little doubt that their own private drains, soil-pipes, and waste-pipes are active and constant producers of equally deleterious gases, sufficient to account for the unhealthy condition which is so often ascribed exclusively to the sewer in the street. It would be a comparatively small matter so to disconnect every house from the sewer that it need be in no danger of an invasion of its gases. If only this were needed to remove the drain diseases which we know to be so rife, our problem would be a very simple one. Unfortunately what is needed is very much more serious than this, and must be very much more costly.

The health officers of every city know, or it is their duty to learn, and they may learn very easily, the relations existing between defective drains and waste-pipes and the ill-health of those who live in houses containing them. This knowledge must qualify them to pass a decree of absolute condemnation

\* Extracted from an article under the above heading in the *Plumber and Sanitary Engineer* (New York) for December.



against every one of these wrongly-arranged and badly-constructed appliances. Trashy soil-pipes, imperfectly jointed, unventilated, unflushed, and inadequately supported, as they exist in so many of our tenement houses; corroded waste-pipes, half choked with foul accumulations and sagging in their course; traps so shallow, so badly placed, and so badly arranged that they are traps only to catch those who trust them; and open-mouthed sink-wastes, pouring their mephitic exhalations into the interior of close and closely-packed houses—to say nothing of the worst possible water-closets in the worst possible condition—these are the rule, not the exception, in nearly all our tenement houses.

There is not room here, nor is it necessary, to enter into a detailed consideration of the various items of what should be demanded. The need for absolute tightness of material and of joints, of the most thorough ventilation of soil-pipes and important drain-pipes, and for the most rigid exclusion of the contained air of all these pipes from the interior of the house, is perfectly understood. The difficulty is that it is understood as a matter of theory. It is not accepted with that realising sense of its vital importance which is necessary to insure the proper action.

The chairman of a board of health lives himself, in all probability, in a house whose drainage system is full of sanitary defects, and it would not occur to him to demand more perfect work in a tenement house than he demands for himself. In the present condition of affairs it is perhaps necessary that he should be permitted to face the dangers of his own situation unchallenged. He belongs to a class which is supposed to be able to take care of itself, and which has at least the power to secure any change that it desires. With the class which we have under consideration—the occupants of tenement houses—this is not the case. They have slight means for informing themselves, and little realisation of the importance of the subject. They are, moreover, the slaves of their landlords, and unable to help themselves were they ever so wise as to their requirements. They are the wards of the public authorities. It is to save them from danger and death and, incidentally, to save their more prosperous neighbours from infections which may spring from them, that boards of health exist. In their case it is possible and it is necessary for a competent authority to declare precisely what sort of plumbing work shall be provided and to enforce the declaration.

#### THE PROPOSED WORKMAN'S CLUB IN DUBLIN.

DURING the last month a meeting was held at the Mansion House, for the purpose of taking steps to establish a workman's club in Dublin. The object was a good one; there is ample room for more than one club, and facilities exist for establishing the same. We must say, however, those who wished to carry out their own pet scheme of a workman's club, had they succeeded in their views, the club would certainly prove a failure sooner or later. Knowing something of the formation and conduct of workmen's clubs in London, we agree with the Rev. Canon Bagot generally in the view he enunciated. The reverend gentleman very pertinently said "they were striking at the root of the independence of the whole scheme unless they made it in reality a club, and this would not be a workman's club if the workingmen had nothing to say to the election of presidents and vice-presidents. He believed the working men could form their own committee, and select their own literature. As a Protestant clergyman he challenged the promoters to put to a similar constitution in any club in England or Scotland. Let the club be established; let the members be enrolled; and let the members frame their own rules and elect their own officers."

After a good deal of desultory talk, resolutions made in hot haste were wisely withdrawn, and a provisional committee appointed for the purpose of consulting with the heads of the trade societies, and reporting to an adjourned meeting to be held in the course of this month.

#### THE LATE T. HEVEY, ARCHITECT.

WHILST we are at press the sad intelligence reaches us from Belfast of the death of the above-named gentleman, which took place on Sunday last. It appears that during the severe weather of the past fortnight, whilst on a professional visit to Newry, he caught a heavy cold, which brought on congestion of the lungs, from the effects of which he never rallied. Mr. Hevey served his articles with Messrs. Boyd and Batt, Donegall-square, Belfast. He subsequently came to Dublin, and was engaged for a few years in the office of Messrs. Pugin and Ashlin. Here he found a congenial field for his aspirations as an ecclesiastical architect—a branch of the profession which afforded him scope for the display of his natural abilities. "No work," writes a contemporary, "connected with his profession seemed to require from him the slightest effort to bring it to success. He was esteemed by all who knew him, his pleasant and agreeable manner making him friends among all classes of people with whom he came in contact." Mr. Hevey has been called away at the early age of thirty-three, leaving his widow and one child to lament his loss.

#### AMERICAN BUILDING AND GENERAL IRONMONGERY.

THE manufacture and supply of good, as well as cheap ironmongery is a matter of great importance to builders, cabinetmakers, and kindred trades, as well as to householders. During the last quarter of a century a large amount of building and cabinet ironmongery has been thrown upon the British and Irish markets of a very inferior and often worthless description. Speculative builders have dealt largely in this class of goods, and the door and window furniture, fastenings, and fittings, &c., used in their houses have been a sorrow and disaster to the tenants occupying them. The fittings in connection with a certain class of cabinet work have also been of a very flimsy description. The domestic ironmongery bought by householders, apart from that supplied by builders, cabinetmakers, &c., is, in many instances, of the same worthless character.

Building workmen's tools of English make have also in some instances deteriorated, compared with the quality formerly supplied. Very little ironmongery, comparatively speaking, is manufactured in Ireland, although in the early part of the century we could boast of firms noted for building ironmongery of native manufacture. We have, of course, still in Dublin and elsewhere through the provinces foundries for castings, farming and agricultural implement manufacturers, and bell and brass founders. In some of the latter branches Dublin still turns out some good work; and we may on an early occasion give some detailed particulars of the part that Ireland plays in the ironmongery, brassfounding and casting trades.

It is a remarkable fact of late years that America or the States are forging ahead of England in some branches of the above trades. In workmen's tools in connection with the wood-working trades, considerable ingenuity has been manifested by American makers and manufacturers. In several directions the Americans have improved on British manufacture in turning out tools and various articles and appliances of better design, quality, and finish. Competition is latterly growing strong, and a large amount

of American ironmongery is now in the British market, and it certainly is making headway. It behoves the British manufacturers to bestir themselves. In London and the large provincial towns American-made goods will be found in the ironmongers' shops, and are growing into demand from their cheapness, and from their better appearance and finish. Our contemporary the *Engineer* has drawn particular attention to the fact, and it tells its readers and the public generally:—

"If we ask for locks, gas standards, roller-blind fittings, small brackets, hooks and bat-pegs, domestic apparatus and tools, substantial toys, and very many other things, we are shown American productions. The reason for this is not sufficiently obvious in all cases, though in many cheapness is the explanation. Hardly any English small casting are anything like as fine in surface, light in pattern, and cleanly turned out as are these American things. Small English castings often show the joint in the mould in which they are cast, fins are not often absent; and they are either turned out uncoated, or are daubed with a common black or dipped into a commoner. Most often screw holes are too large or too small. All this the Americans have changed. Their castings are light, though strong in design; they are clean, and are touched up on an emery or grindstone, and are nicely coated with a clear, brown varnish of great toughness and strength. The holes are almost invariably properly prepared to receive the screws for fixing. The screws themselves are coloured to match the iron-work, and, at the same time, prevent rusting. The holes, too, are arranged so that where the greatest strain comes there are the most screws. Now, these are reasons which affect the purchaser only, but there are other reasons which affect the ironmonger, and which explain why he is so ready to show his customer the American articles. All the small articles to which we have referred are sent out by the English manufacturer done up in separate papers, or in paper packets tied up with string. Thus when the ironmonger wants even one article, or only wishes to show one to a customer, he has to undo a string, unfold a paper or papers, do these papers up again, tie them, and re-arrange the label on the package. Instead of this old bungling way of keeping store and serving customers, the Americans supply their articles in paper boxes, sufficiently strong to last out the sale of the articles one or two at a time. These boxes are easily and neatly stacked, the labels are fixed once for all; and to open one and show its contents, or take some out and re-close the box, is the work of a moment. This question is one of much greater importance than it at first sight appears. Folding up and re-tying parcels is irksome and exceedingly uninteresting work, and is such as is not done very quickly at any time. Piles of packages, which have been taken down to show customers, collect on the counters to be done up "presently," because they cannot be done up while the customer is being served. These have to be done up, and some one must do it. Here is an important saving. One London ironmonger, whose sales in furnishing ironmongery in a moderate-sized shop consist of about one-half American articles, recently assured us that he had, from the saving of labour in this way, been able to dispense with about one-fourth the assistance he would otherwise have required for the increased business done in small articles. Again, not only do tradesmen and assistants appreciate the saving in time in serving customers, but the work is so very much cleaner for them, and the work of clearing up after closing is reduced almost to nil."

We commend the above statement to the serious attention of our builders, cabinetmakers, householders, and general workmen. If the Sheffield and Birmingham manufacturers do not supply us with better goods, or articles in every respect equal to the Americans, their's will be the loss, and a serious loss it is likely to be. Nothing can be much worse at present than the cheap class of locks and sash-fasteners now in the market, of English manufacture. To manufacture and sell workmen's tools of bad quality is a gross injustice, as it means a loss of time, more labour, and a worse finish of his work on the part of the workman. Some old and respectable English houses still continue to supply a good article, and they are likely to sustain their reputation; but one and all of our British manufacturers, in view of American competition, have need to turn over a new leaf with the present new year.



## EXCAVATIONS AT ILIUM.\*

HAVING continued these excavations for two months with a large number of labourers and several horse-carts, I now stop for the winter and hasten to lay before the public a brief account of the results obtained. My endeavours were principally directed to the excavation of the large mansion to the west and north-west of the gate, and to that of the gate itself, which, contrary to what my severe critics repeatedly pretended, was not barred by a solid wall of masonry, but merely by a huge mass of wood ashes. The latter was carefully examined by Captain H. H. Beamish, Lieutenant H. C. Sayce, and other officers of H.M.S. "Pallas," all of whom would be happy to undertake my defence should the attacks be renewed. The large mansion I identified with that of ancient Troy's last chief or king, because I had found in my former excavations in it or close to it a large treasure and a great deal of beautiful pottery; but now I maintain that identity with still more powerful reasons than before, having again discovered in it or close to it three small and one large treasures of gold ornaments. Of the former the first was found and cut out on the 21st of October, in the presence of seven officers of H.M.S. Monarch, in a chamber in the north-east part of the mansion, at a depth of 26 ft. 5 in. below the surface of the mound; it was contained in a broken hand-made vessel, which lay in an oblique position, about 3 ft. above the floor, and must have fallen from an upper storey. The jewels consisted of twenty gold earrings, of which sixteen run out into six serpents, and are like the uppermost engraving to the left on pl. xx. in "Troy and its Remains," the only difference being that sixteen earrings have not the two series of parallel dots with which the latter are ornamented; the other four earrings are almost perfectly similar to the second earring in the second row on the same plate, the sole difference being that they consist of only one serpent: further, four gold ornaments, perfectly similar to those found in the third tomb at Mycenæ, and represented under No. 297 (in my "Mycenæ"). They must have been used for necklaces, as they have in the midst a long tubular hole. They were made in the following manner. To each end of a small gold tube were soldered two thin gold wires, which were on either side turned five times round, and the spirals thus formed were soldered together, the outside turn of each also being soldered to the tube. Of the same pattern there is a gold hairpin, from the top of which runs out on either side a gold wire, which is turned round four times. Similar to the same pattern is another gold hairpin, whose top is ornamented with a solid golden bell and with spirals on both sides. I may further mention a very large quantity of gold beads and a bracelet of electron with three windings; it is 0.16 in. thick, and so narrow that it could only fix on a child's arm. To this bracelet had been fused in the great conflagration one of the gold earrings, as well as a large number of the gold beads and parts of a necklace of small silver rings; all these objects form as it were one solid mass with the bracelet. The little treasure further contained eleven silver earrings of the same form as the above gold ones, except one which resembles a pair of tongs. This latter is fused to another earring and two gold beads; of the other silver earrings, also four and three are fused together. There are besides twenty fragments of necklaces, consisting of innumerable silver rings of 0.28 in. in diameter, strung on pieces of a substance which I believe to be ivory, and Dr. Moss, of Arctic celebrity, now of H.M.S. Research, fully confirms this. All these fragments form a curve, and the rings having been fused together in the conflagration, they now form solid masses; in one instance even two of these fragments of necklaces are fused together by means of a silver earring. I further counted 158 similar silver rings, either single or fused together by small

numbers. In a like manner, there are also many fragments of necklaces composed of silver beads fused together, to which stick numerous gold beads; further, a cylindric bar of electron 1.9 in. long, as well as a hairpin of the same metal of the usual Trojan form, viz., in the form of a nail with a globular head.

To the west of the gate visitors see the longest wall of the town-chief's mansion: it runs parallel with the great circuit wall of the city, and is 53½ ft. long and 4½ ft. high; it consists of smaller and larger stones, joined with clay. Near the north-western extremity of this wall, and just 3 ft. above the ground, I found, in a layer of grey ashes, two more small treasures, both contained in broken hand-made terra-cotta vases, of which the one lay in an oblique, the other in a horizontal position, from which circumstance I conclude that both vessels had fallen in the catastrophe from an upper part of the house; the orifices of both vases nearly touched each other. The latter contained six round and four oval beads of cornelian; a flat plain gold lappet, having at each end three perforations for being attached with a string; forty-three very large globular gold beads, and innumerable small gold beads of various shapes; a small gold bar, 1½ in. long, with ten perforations, apparently for suspending ornaments, probably chains with pendants; a gold plate ornamented with zigzag lines and crowns of excellent intaglio work, but, either by the action of the fire or by the hand of man, this plate has been four or more times folded together, and, as it is very thick, it is impossible to unfold it with the hand: further, large and smaller lumps of gold, one of which seems intentionally to have been fused in the shape of a bell; to this lump has been fused in the conflagration a good deal of chlor silver. I also mention a large nugget of gold, and another of silver, turned into chlor silver, to which are fused ten gold beads of different forms; a long quadrangular gold wire, almost in form of an earring; fourteen gold earrings of the common Trojan shape, viz., in form of six or seven serpents; a gold earring, in form of an Egyptian Aspis; a gold earring, in the shape of an upset vase, to whose orifice a gold wire with twenty-one windings is soldered; a gold earring, with a plain pendant and two pointed ends, so that it could be put through the ear by either of them: further, a magnificent gold earring, formed of fourteen gold wires, which were bent and soldered together, and whose inner side was smoothed so as to make it perfectly even; on one side it is ornamented with one row, on the other with two rows, each of five rosettes, and with one rosette at the top; to the upper part, which has perfectly the shape of a basket, is soldered a small gold plate, ornamented with five triangles between two lines, all of intaglio work, and above each triangle is a perforation; from each of these latter is suspended a gold chain, covered with sixteen gold leaves in form of flowers, and at the end of each chain hangs a gold ornament, much like a Trojan idol (see "Troy," &c., p. 36), but terminating in four leaves. I further mention an earring of electron ornamented with a little crown, in which is fixed a pendant, apparently of silver, for it is much corroded; to this latter jewel have been fused a silver earring and innumerable silver beads; also a pendant of electron, to which are fused numerous gold and silver beads; also about ten silver earrings, all fused together, and covered with gold beads, which have been fused to them: they have the usual Trojan shape. Further, a gold circle, with eighteen incisions. Close to the two vases with the jewels lay embedded in the ashes a bronze battle-axe, 9½ in. long, of the usual Trojan form (see "Troy," &c., p. 330, Nos. 257 to 260), and two of those strange weapons represented by Nos. 267 and 268, on p. 332. Only 3 ft. from this find, but on the house-wall itself, and at a depth of 26 ft. below the surface, was discovered a further larger treasure of bronze weapons and gold jewels; the former consisted of two lances, a knife, and two small weapons, all fused together;

further, a battle-axe. Further, a broken bronze vessel, to which are fused many gold beads: it contained two heavy gold bracelets, weighing nearly as much as eighteen sovereigns; they are almost an inch broad, and consist of a thick gold plate, which on the one bracelet is piped with thick gold wire, on the other with silver wire. The outside of the former is divided by four vertical rows, each of three rosettes, into four nearly equal fields, which are filled up by two rows of the spiral ornamentation which we see in "Mycenæ," p. 196, No. 295, and, to enhance the beauty of the bracelets, the artist has taken care to represent the ornament in one row in the position it has in the engraving No. 295, and in the other row in the inverse position; the one row contains eight, the other nine, of such ornaments; there is, besides, a vertical row of four of the latter, and thus all round the bracelet there are seventy-two such ornaments, made of gold wire and soldered on the plate. The ornamentation of the other bracelet is almost identical with this, the only difference being that, instead of rosettes, the vertical columns are filled with beads. I may also mention large lumps of melted gold, one of which is similar to the gold nuggets as they are found in the gold mines, also a lump of gold, evidently cut from a gold bar. Together with these objects was found the lower half of one of those large Trojan goblets (δῆπα ἀμφικύπελλα), from which stuck out sixteen bars of gold, each 4.33 in. long, and each with fifty-six incisions. Having pulled these bars out of the goblet, I found below them two pairs of very heavy gold earrings, again of the kind represented by No. 280 on pl. xx. in "Troy," &c., but much more artistically made, the outside of the one pair being ornamented with four rows, each of seven rosettes, below which are eighteen protruding points; also, instead of only one plate, there are soldered to the lower part two plates, to each of which are fastened eight rings, formed of a double gold wire; thus to each of these earrings were suspended sixteen chains, which must, however, have been of thread, because they have disappeared, but the many hundreds of gold beads which have remained are silent witnesses to their splendour; the beads are either quadrangular and ornamented with incisions, or of round or oval form, or they consist of long, very thin rings. The other pair of earrings has on each side, between five borders of two lines, four rows, each of twenty-five protruding points; thus, on both sides together, 200 of them. We see there also incised geometrical patterns in the midst as well as on each side of the plate, which is soldered to the lower side. There were further found nine simpler gold earrings, one of which is ornamented with four rows, each of two spirals, resembling those on the second Mycenaean tombstone (see my "Mycenæ," p. 81, No. 140). Another has a pendant in the shape of the tongue of a bell, three others have the usual Trojan form, whilst the remaining four are mere spirals with two windings, and, on closer inspection, I find both extremities of them by far too thick to be put into the ear. They must, therefore, have been used for holding together the locks, and they could, in my opinion, perfectly explain the passage in Homer (Il. xvii. 51-52):—

Those locks that with the Graces' hair might vie,  
Those tresses bright with gold and silver bound,  
Were dabbled all with blood.—Lord Derby.

I further mention two gold bars, the one with eighteen, the other with twenty perforations; forty-five gold buttons, of hemispheric form, with a border of twenty-five globulets; and a plain hairpin of gold, with an octagonal head.

Of gold finds I further mention two magnificent hairpins, discovered in deepening the trench on the north-west side, precisely 16 ft. below the circuit town wall, built by Lysimachus in about 300 B.C. One of them is very massive, 3 in. long, and ornamented with a plate of gold, 1½ in. long by 0.7 in. broad, which would be perfectly quadrangular did not its basis run out to the right and left into spirals with seven windings; the surface

\* By Dr. Schliemann, in *Athenum*.



of the plato is divided into ten vertical columns, six small and four large ones, each of the latter being ornamented with seven double spirals, each with three windings and very similar to the Mycenaean ornament (see, for instance, Nos. 295 and 296, on p. 196 in my "Mycenaean"). The top of the plate is ornamented with six beautiful little gold vases, which stand on its upper edge, but do not adhere to one another; all stand separately, and, to enhance their beauty, the Trojan goldsmith has fixed their two handles so that the one protrudes on the front, the other on the reverse side. Each of these little gold vases, of which many similar ones of terra-cotta are in my Trojan collection in the South Kensington Museum, has a flat round cover, which renders the beauty of this marvellous hairpin still more conspicuous; the spirals consist, of course, of gold wire soldered to the gold plate. The other gold hairpin is simpler; it is ornamented with a gold ball, below and above which protrude, on either side, spirals with four windings, much like some Mycenaean ornaments (see, e.g., No. 295 in "Mycenaean"); the top ends in an object resembling a screw with a large flat cover. Still I have to mention a small gold find in my excavation on the north side of the hill, but it consists merely of a pair of heavy massive earrings, weighing as much as one and a-half sovereigns, in the shape of single serpents dotted with points; a small object of silver, 1 in. long, 0.12 in. broad, with six perforations, and a silver plate of oval form measuring 2.4 in. in its broadest part; its length cannot be well determined, as it has been folded in the fire and both ends are bent over, but it appears to have been about 5 in. long. Together with these objects was found a mass of gold heads, among which are many in form of leaves, with horizontal tubular holes in the midst. Finally, I have to record the find of a pretty gold hairpin, which represents on both sides a fine rosette with eleven flower-leaves; the top is ornamented with a broad gold band, which runs out to the right and left into a spiral with four windings; the disc with the rosettes reposes on another gold band, which forms on either side a spiral with three windings.

(To be continued.)

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

CHRIST Church Cathedral has been rebuilt, or "restored" if you will, or partially rebuilt or repaired if you like, and the "restoration" of St. Patrick's Cathedral has preceded the latter by several years. Apart from divided opinions on the part of architects and antiquaries and archaeologists as to the freedom in architectural treatment exhibited by those entrusted with the works of restoration at both cathedrals, no one will deny a just tribute to the two worthy and wealthy citizens who have so munificently contributed the costs of the works. It would be difficult to say how many reparations have taken place at both cathedrals during the last seven centuries or upwards. Every repairing builder or architect in his own age probably acted from the best motives, and considered his additions superior to those that preceded him. It would be instructive, no doubt, to read an account of all the reparations, if they could be collected easily, and placed before the readers who take delight in criticising present-day works of the kind. The restorations of forty or fifty years ago, when viewed in the light of our time, often create a smile and not unoften fierce condemnation. The west end of St. Patrick's was probably rebuilt nigh fifty years since, and in a contemporary description we are informed:—"The stones are from Tullamore quarry, and are of the most durable description; and the workmanship has been executed by the firm of Messrs. Mullen and M'Mahon, which, in addition to the north transept recently built by them, it is but justice to say does credit to the firm, who, we are informed, have manifested more zeal for renovating the cathedral

agreeably to its original style of architecture than to any pecuniary profits to themselves. The restoration of this ancient door and window will remain a lasting testimonial to future ages of their taste and abilities, as well as a specimen of Irish architecture." In the above it will be seen the term "renovation" has been used as well as the more hackneyed one of "restoration."

The Messrs. Mullen and M'Mahon between forty and fifty years ago were extensive builders in this city, and constructed several large public and private works. It seems in their works at St. Patrick's no architect was employed, no more than at the more recent restoration, the cost of which was borne by the late Sir Benjamin Lee Guinness. The latest restoration was carried out by a firm of builders which no longer exists, Messrs. Timothy Murphy and Son, of Amiens-street. The son was believed to have furnished whatever drawings were needed; but since the completion of the works, thirteen years since, both father and son "passed beyond that bourne from whence no traveller returns." As builders, however, let us add that the firm was old and greatly respected in Dublin. The great west window, so highly spoken of at the time, was erected at the sole expense of the late Dean Dawson, for which he paid £600. The door and other repairs were paid for by instalments out of what was called the Economy Fund. The door stood 6 ft. under the level of the previous modern one removed. After Messrs. Mullen and M'Mahon's alterations, you descended, as now, from the street in front, which was sunk to the original level of the door when the cathedral was first built. The street in front during a long period had been raised from time to time to upwards of 6 ft. to prevent the frequent inundations of the River Poddle, that tributary of the Liffey (long since becoming a great covered public sewer), running in front of the cathedral. The inundations of the Poddle, common up to the earlier part of the present century, were remedied to a great extent by removing the mills and other obstructions in the stream, and by frequent cleansing of its bed. It is many years now since there was any serious inundation of the Poddle in the Liberty quarter, though there are old men probably still alive who might have remembered in their early boyhood days boats plying at the bottom of Patrick-street.

The writer whom we quoted above observes:—"It is hoped that the munificent example of the Dean [Dawson] will be followed by the Archbishop of Dublin, and the dignitaries and prebendaries of the cathedral, together with the Knights of St. Patrick, by putting in a new window each at their own expense, thereby restoring to its pristine grandeur this venerable pile, &c." Until Mr. Guinness, however, took the work of the latest restoration in hand, little was done, if anything, after Dean Dawson's time. After Messrs. Mullen and M'Mahon's reparations some restorations were carried on for some time by Mr. Henry Kingsmill, of Lower Mount-street, who was a prosperous builder for some years in this city; but that firm of builders, like the others engaged in the restoration of St. Patrick's in our time, has ceased to exist for some years. We might have added that some of the money that paid for the work executed by the first-named builders had to be borrowed on interest by the Dean and Chapter; but hard times came again, and neglect and indifference, and the restorations commenced by Mr. Kingsmill, the builder, remained unfinished until taken up in the general restoration, completed in 1865.

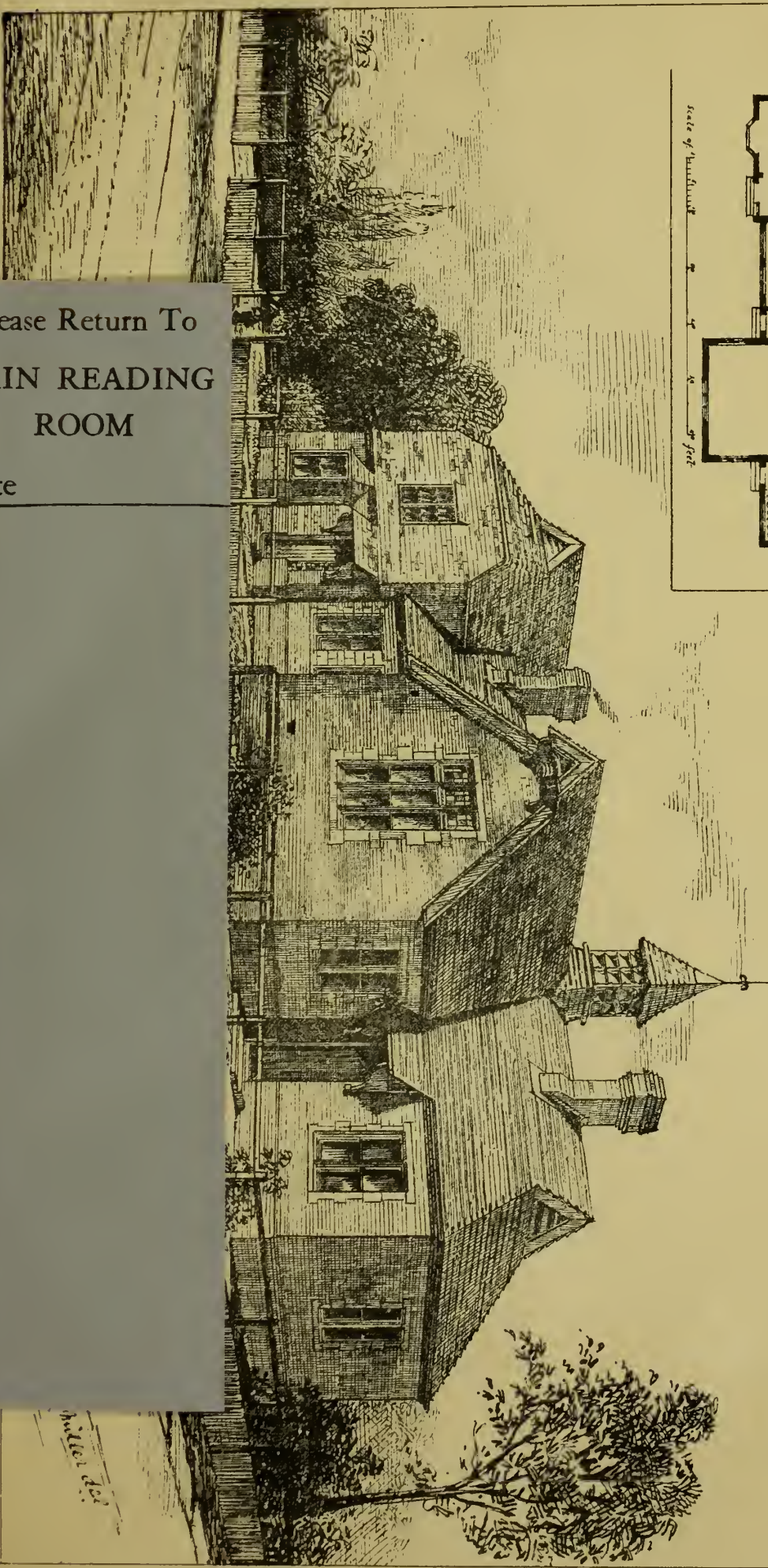
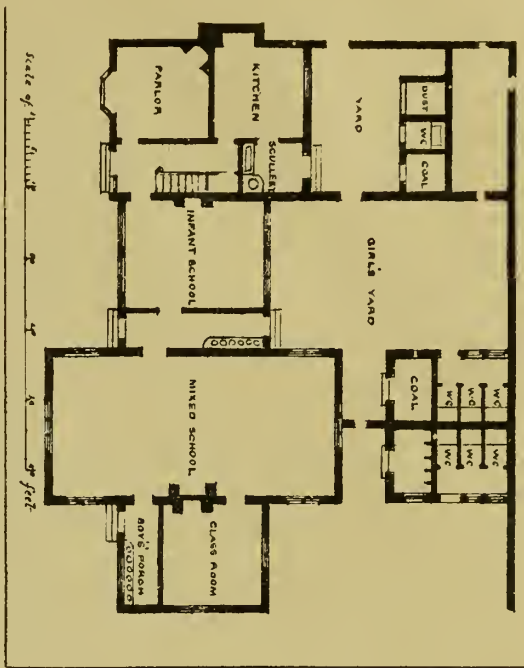
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his story was true, and what relates to the personal appearance and characteristics of the hermit may be taken as the literal truth. We will give an extract or two from Ettingsall's sketch, written in 1835:—"Who that was resident in Dublin between the last forty and fifty years but remembers Captain Dempsey?—a tall sinewy man, with high cheek bones, sunken eyes, and self-resigned aspect, and over whose chin no razor had passed for years. His beard was of a brownish hue, and very bushy. He wore in general a long plaid mantle tied at the neck, and hanging loosely over his shoulders—a broad hat, with a singularly round crown, two patches of leather sewed on his knees, and large silver buckles in his shoes. His fingers were adorned with several rings—not for their lustre it was evident, but in remembrance of some dear friends; for at times he would seem to make a sudden stand in the street, look on them with a wild stare, then, as collecting his scattered senses together, let the day be ever so wet, drop on his knees, offer up on each ring a prayer in silence, then precipitately rise and proceed on his journey, although through a crowd of gapers and shouts of idle boys. Patrick-street was his favourite haunt, and he seemed to have a particular taste for herrings, as he was seldom seen to return home without a few of them under his cloak. His habitation was a wooden hut, in one corner of a piece of waste ground at the lower end of Townsend-street, near the old depot. The door was at the top, to which he ascended by blocks of wood nailed at the outside at regular distances. The door or window, we may call it either, overlooked the sea; there he would sit for hours together in seeming pensiveness. When his mind would be tranquil, which was often the case, he was very conversant, and so condescending to the inquiry of the curious, that he would seem gratified in satisfying the inquisitive demands of the meanest boy. But if any of his fits of insanity should visit him, he would clap the door in the face of the person to whom he was speaking, and retire to a place he had under ground, in which was a little altar and two tin lamps constantly burning. Sometimes his door would be shut for several days until the fit worked off him, for which the neighbours charitably watched, and as soon as he again appeared and resumed his accustomed station, would bring him such refreshment as his weak frame required. The chief point requisite in the visitor appeared to keep his mind and eyes from the rings, for if he once dwelt on them all discourse was over, and ten chances to one but the door of his little habitation would be quickly dashed in the face of the visitor as to strike him violently in the face."

Ettingsall professes to unravel the mystery of Dempsey's life, and the tale is a strange one, of early love, disappointments, and other sad vicissitudes. According to the narrator (who interviewed the hermit in one of his happy moods, and learned the story of his life), Captain Dempsey died in 1802. His death was unknown to his neighbours for a week. When his hut was opened he was found in his place in the attitude of prayer. "Thus," concludes Mr. Ettingsall, "ended Captain Robert Dempsey, born at Cork, 1742. It seems many documents were found in his hut, but whether destroyed or preserved I cannot say, but hope one day or other the possessor will give them to the public." That such a character as Captain Dempsey existed in Dublin there can be little doubt, though the narrative, as a whole, has been made to subserve the purpose of a startling and well-told story.

Thomas Sheridan, the actor, dramatist, and lexicographer, and manager for several years of our old Dublin theatres in the last century, experienced all the ups and downs and embarrassments attending members of his profession. At one period his creditors were so importunate and his debts so heavy (although when he could pay he acted honestly), he had to obtain an Irish Act of Parliament to protect him from arrest. On





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of the plate is divided into ten vertical columns, six small and four large ones, each of the latter being ornamented with seven double spirals, each with three windings and very similar to the Mycenaean ornament (see, for instance, Nos. 295 and 296, on p. 196 in my "Mycenaean"). The top of the plate is ornamented with six beautiful little gold vases, which stand on its upper edge, but do not adhere to one another; all stand separately, and, to enhance their beauty, the Trojan goldsmith has fixed their two handles so that the one protrudes on the front, the other on the reverse side. Each of these little gold vases, of which many similar ones of terra-cotta are in my Trojan collection in the South Kensington Museum, has a flat round cover, which renders the beauty of this marvellous hairpin still more conspicuous; the spirals consist, of course, of gold wire soldered to the gold plate. The other gold hairpin is simpler; it is ornamented with a gold ball, below and above which protrude, on either side, spirals with four windings, much like some Mycenaean ornaments (see, e.g., No. 295 in "Mycenaean"); the top ends in an object resembling a screw with a large flat cover. Still I have to mention a small gold find in my excavation on the north side of the hill, but it consists merely of a pair of heavy massive earrings, weighing as much as one and a-half sovereigns, in the shape of single serpents dotted with points; a small object of silver, 1 in. long, 0.12 in. broad, with six perforations, and a silver plate of oval form measuring 2.4 in. in its broadest part; its length cannot be well determined, as it has been folded in the fire and both ends are bent over, but it appears to have been about 5 in. long. Together with these objects was found a mass of gold beads, among which are many in form of leaves, with horizontal tubular holes in the midst. Finally, I have to record the find of a pretty gold hairpin, which represents on both sides a fine rosette with eleven flower-leaves; the top is ornamented with a broad gold band, which runs out to the right and left into a spiral with four windings; the disc with the rosettes reposes on another gold band, which forms on either side a spiral with three windings.

(To be continued.)

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

CHRIST Church Cathedral has been rebuilt, or "restored" if you will, or partially rebuilt or repaired if you like, and the "restoration" of St. Patrick's Cathedral has preceded the latter by several years. Apart from divided opinions on the part of architects and antiquaries and archaeologists as to the freedom in architectural treatment exhibited by those entrusted with the works of restoration at both cathedrals, no one will deny a just tribute to the two worthy and wealthy citizens who have so munificently contributed the costs of the works. It would be difficult to say how many reparations have taken place at both cathedrals during the last seven centuries or upwards. Every repairing builder or architect in his own age probably acted from the best motives, and considered his additions superior to those that preceded him. It would be instructive, no doubt, to read an account of all the reparations, if they could be collected easily, and placed before the readers who take delight in criticising present-day works of the kind. The restorations of forty or fifty years ago, when viewed in the light of our time, often create a smile and not unoften fierce condemnation. The west end of St. Patrick's was probably rebuilt nigh fifty years since, and in a contemporary description we are informed:—"The stones are from Tullamore quarry, and are of the most durable description; and the workmanship has been executed by the firm of Messrs. Mullen and M'Mahon, which, in addition to the north transept recently built by them, it is but justice to say does credit to the firm, who, we are informed, have manifested more zeal for renovating the cathedral

agreeably to its original style of architecture than to any pecuniary profits to themselves. The restoration of this ancient door and window will remain a lasting testimonial to future ages of their taste and abilities, as well as a specimen of Irish architecture." In the above it will be seen the term "renovation" has been used as well as the more hackneyed one of "restoration."

The Messrs. Mullen and M'Mahon between forty and fifty years ago were extensive builders in this city, and constructed several large public and private works. It seems in their works at St. Patrick's no architect was employed, no more than at the more recent restoration, the cost of which was borne by the late Sir Benjamin Lee Guinness. The latest restoration was carried out by a firm of builders which no longer exists, Messrs. Timothy Murphy and Son, of Amiens-street. The son was believed to have furnished whatever drawings were needed; but since the completion of the works, thirteen years since, both father and son "passed beyond that bourne from whence no traveller returns." As builders, however, let us add that the firm was old and greatly respected in Dublin. The great west window, so highly spoken of at the time, was erected at the sole expense of the late Dean Dawson, for which he paid £600. The door and other repairs were paid for by instalments out of what was called the Economy Fund. The door stood 6 ft. under the level of the previous modern one removed. After Messrs. Mullen and M'Mahon's alterations, you descended, as now, from the street in front, which was sunk to the original level of the door when the cathedral was first built. The street in front during a long period had been raised from time to time to upwards of 6 ft. to prevent the frequent inundations of the River Poddle, that tributary of the Liffey (long since becoming a great covered public sewer), running in front of the cathedral. The inundations of the Poddle, common up to the earlier part of the present century, were remedied to a great extent by removing the mills and other obstructions in the stream, and by frequent cleansing of its bed. It is many years now since there was any serious inundation of the Poddle in the Liberty quarter, though there are old men probably still alive who might have remembered in their early boyhood days boats plying at the bottom of Patrick-street.

The writer whom we quoted above observes:—"It is hoped that the munificent example of the Dean [Dawson] will be followed by the Archbishop of Dublin, and the dignitaries and prebendaries of the cathedral, together with the Knights of St. Patrick, by putting in a new window each at their own expense, thereby restoring to its pristine grandeur this venerable pile, &c." Until Mr. Guinness, however, took the work of the latest restoration in hand, little was done, if anything, after Dean Dawson's time. After Messrs. Mullen and M'Mahon's reparations some restorations were carried on for some time by Mr. Henry Kingsmill, of Lowe Mount-street, who was a prosperous builder for some years in this city; but that firm of builders, like the others engaged in the restoration of St. Patrick's in our time, has ceased to exist for some years. We might have added that some of the money that paid for the work executed by the first-name builders had to be borrowed on interest by the Dean and Chapter; but hard times came again, and neglect and indifference, and the restorations commenced by Mr. Kingsmill the builder, remained unfinished until taken up in the general restoration, completed in 1865.

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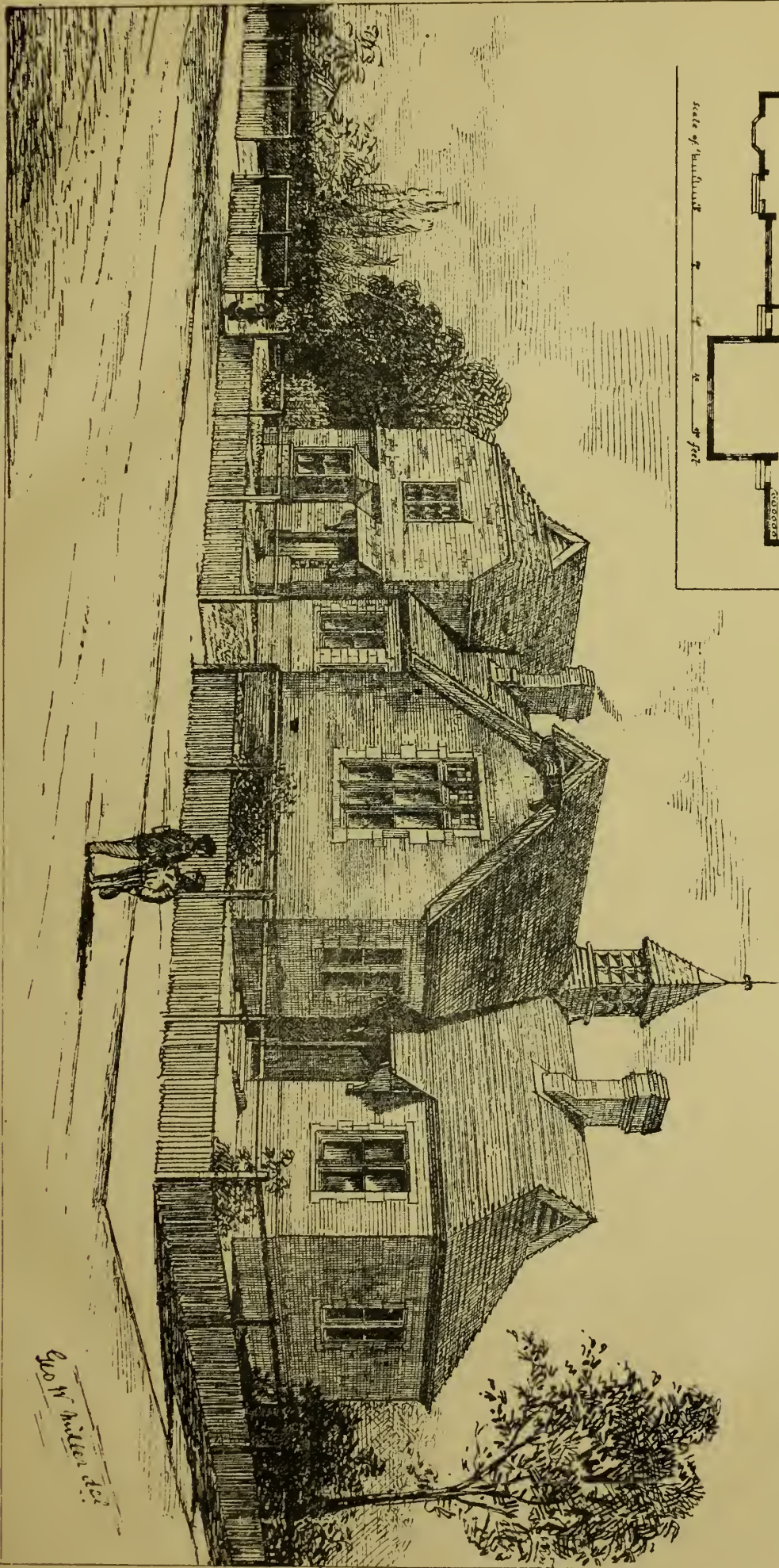
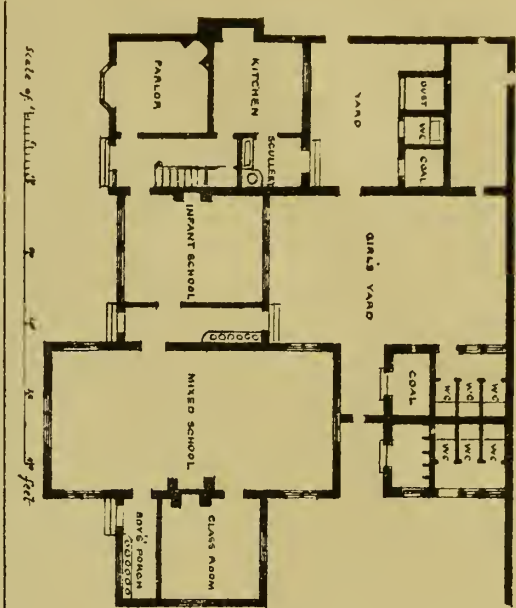
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DESIGN FOR SCHOOLS.

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this occasion his debts amounted to £1,600, but in the following season he saved £800, and gave notice to his creditors that he was ready to pay them ten shillings in the pound, which offer, we believe, they availed themselves of. Faulkener, the printer (at an earlier period Swift's printer), was one of Sheridan's creditors. The printer and journalist told Sheridan he would not trouble him with his demand till the actor dined with him. Sheridan accordingly called on Faulkener, who, when dinner was over, put a sealed paper into his guest's hand, which he told him contained his demand, at the same time requesting Sheridan to examine it at his leisure at home. When at home the actor found under the seal a bond for £200 due to Faulkener cancelled, together with a receipt in full of a book debt to the extent of £100. It may be well asked whether is the conduct of the actor or printer the more generous or laudable? but after all the query need hardly be put, for the "prince of Dublin printers" was worthy of his title.

H.

### RAILWAY WORK IN JAPAN.\*

THE author stated that there were at present 66½ miles of railways in Japan, 142½ miles laid out, with working plans, sections, and estimates completed, and 455 miles projected, the general route only having been examined and decided upon. The earthworks of the existing lines had been made for a double way, and the bridges for a single way. The permanent way was of double-headed 60 lb. rails on the Yeddo-Yokohama and Kobe-Osaka lines; but on the Osaka-Kioto line, 60 lb. flat-bottomed rails on cross sleepers were used. The superstructure of the smaller bridges was originally of timber, but had been renewed with iron. The larger bridges were all of the Warren girder type, and as a rule of 100 ft. spans. The foundations were on brick wells 12 ft. in diameter, and on an average about 60 ft. deep. Native examples of engineering were chiefly remarkable for their temporary character. The usual foundation for the largest buildings was only a few stones on the surface of the ground. The natives were very clever in making artesian borings for water, and a detailed description of the *modus operandi* was given. The workmen were extremely intelligent and industrious, especially the carpenters, who were by far the most numerous and skilful. The wages of first-class carpenters were 1s. 8d. per day; of blacksmiths, 1s. 6d.; of bricklayers and masons, 1s. 5d., and of coolies, 11d. Materials found in the country for construction were not very good, except timber, which was abundant. No limestone possessing hydraulic properties had been found. It was impossible to furnish any reliable information as to the cost of the works, as the Japanese officials avoided giving particulars on this point to the foreign staff. The chief engineering difficulty in Japan was the treatment of the watershed. The beds of the rivers were nearly all higher than the surrounding country, varying from a few feet to 40 ft., or more. In some instances the railway had been taken under the rivers by tunnelling, and an example of this was given. As a rule, however, the rivers were bridged over, and approached by steep gradients and high embankments. The flood waters were confined in the rivers by huge banks which were gradually built up by the natives, as the beds of the river became silted up, and were frequently formidable works. The general character of the country was a series of highly-cultivated and well-watered plains, bounded by ranges of hills of the metamorphic formation. Where these hills had to be crossed there would be some heavy works. These features were described in detail. The traffic on the railways already constructed was considerable, and it was estimated that on future railways the passenger traffic alone would pay a dividend of 7 per

cent. Not much had been done in goods traffic, as the existing lines were in competition with the water communications. In the future development of railway work in Japan, two essential points were necessary, greater economy of construction, and the introduction of English capital and enterprise. These could be obtained if the principle of surface lines were adopted, and the natural jealousy of the government of foreign interference were abolished.

### THE WATER SUPPLY OF DUBLIN IN THE THIRTEENTH CENTURY.

In our last issue our co-labourer in these columns touched upon some matters connected with the ancient water supply of the city, and in some of our back volumes particulars were given on different occasions, but more particularly relating to the system of water supply during the last century. We are prone to boast of our present system, and much credit is taken on the head of the purity of the water and the efficiency of the supply. We are all now, in common parlance, sanitarians or sanitary reformers, but the strength of our modern efforts lies more in the fact that the citizens can be heavily taxed for providing them with a supply for their wants, while in respect to old times it was in many instances individual effort instead of municipal organisation conferred benefits upon the city and the citizens. In all ages wealthy and generous citizens have lived, and Dublin as well as other British cities has benefited by the gifts and grants of such men.

John Le Deceur, the mayor of Dublin, in the thirteenth century (as mentioned in our last issue), among his many other acts, provided at his own expense a marble cistern to receive the water from the conduit head. His anxiety to give the citizens water was equalled by his energy in providing bridges where they were required. His charities and hospitalities exceeded perhaps all his other works, and caused his name to be handed down among the great benefactors of Dublin.

The late Sir William Betham, the antiquary, and Ulster King of Arms, in 1833 contributed an interesting paper to a popular Dublin periodical touching on the question of the early water supply of the city. His communication was accompanied with an engraving of "The Old Conduit in Dublin," which once stood in the Coru Market. The antiquary remarked that it was a singular fact that the citizens of Dublin had an aqueduct to supply the city with water, from which it was conveyed by pipes to the houses, as early as the thirteenth century, though down to our own time many of the cities on the Continent were still obliged to obtain their water by buying it from water-carriers in the streets. Sir William furnished some interesting items from a copy of a curious and ancient book, the original of which, we believe, is still in the possession of the Corporation of the city, if not in the Record Office, called the "Domesday Boke of Dyveln City." He gave the following translation from the Latin:—"Memorandum.—That on the morrow of St. Leonard, in the 39th year of King Henry (7th of November, 1239) the Prior and Convent of the Holy Trinity of Dublin, received the water from the vase (basin or reservoir) of the citizens of the said city of Dublin: that is the vase situated opposite the Tholsel of the said city, and near the gate of the Holy Trinity. To be held by them for the three next following years from the said day."

It certainly would appear from the above and other entries that will follow, that there were basins or reservoirs for the reception of the water in various quarters of the city, from which the inhabitants could lay pipes to supply their houses. Preceding the memorandum there is a grant from the citizens of Dublin to the Abbot and Convent of St. Thomas, of certain lands *juxta aqueductum*, which is witnessed by Gilbert de Lynet, who was the first mayor of Dublin in 1228; and

the grant is by the citizens, and not the mayor and citizens, as was the case subsequent to that period. This grant, it appears, is without date, but, in the opinion of our authority, it must have taken place before the year mentioned. The witnesses are—Audeon Brown, John de St. John, Gilbert Lynet, and others. There is no record to show how long before the aqueduct existed, but probably for a considerable time.

Here is another:—"Memorandum.—That on Thursday, after the feast of St. Petronella, in the 39th year of King Henry III., a deed, made between the mayor and inhabitants of Dublin on the one part, and the Prior and Convent of the Holy Trinity on the other, respecting the City Aqueduct. The copy of the prior is deposited for safe keeping with Friar Cradoc, of the Hospital of St. John the Baptist, and the copy of the city with Thomas Ruffo, then provost of the city." The office of provost was similar to that of sheriff, and there were two elected yearly, and the name was at a later date changed to that of sheriff.

Another memorandum of the same ancient book tells of rents granted to the Pipe—"That these underwritten gave to the support of the Pipe of Dublin the following rents for ever: William of Chester gave 11s. annual rent out of his house on the banks of the Liffey; William Pycot gave 12d. out of the stone house which belonged to Wm. Sweetman; Alexander de Ultonia gave 12d. annual rent out of certain lands in Potter-street (*in vico Figulorum*), with the arrears." Here are other grants recorded in the book—A grant of a certain part of the aqueduct from the mayor and commons to the Abbots and Convent of the Friars Preachers in perpetual alms, beginning within the walls at the New Gate near the house of William Clark, and allowing the said friars to join their pipe to the citizens' pipe, with a free transit of the said pipe through the land of the citizens to their house, provided that the pipe where it joined the house should not be so large that the little finger of a man could be inserted, and that it should never be made larger. This deed is witnessed by Luke Archbishop of Dublin, who died in 1255. In the 16th Edward I. (1287) the mayor, &c., granted to Sir Richard de Exeter (afterwards Dexter) a certain portion of water, that is, of a pipe equal to the size of a goose-quill, and also to their fellow-citizen, Henry Le Marshall, for the convenience of himself and his neighbours dwelling near him; that he should be allowed at his own expense to attach a pipe to theirs near the corner which led to Kilmaholmok's-street, to conduct the water to his house near the Church of the Holy Trinity, into his cistern or reservoir, but the pipe not to exceed the grossness of a goose-quill.

In the year 1342 there is a grant to Master Walter de Istelep of right to affix a pipe of the size of a goose-quill to the cistern in High-street, near St. Michael's Church, at 6d. per annum, during his life and his heirs, and afterwards to pay 2s. at two terms—Easter and Michaelmas. In 1329 (3 Edward III.) there is a grant to Nicholas Fastolf and Cecilia his wife that they might have a pipe from the cistern of Master Walter de Istelep, in the parish of St. Nicholas, to their house, to be carried along the middle of Rochelish-street, not to exceed the size of a goose-quill.

The following remarks of Sir William Betham in reference to the above grants are so just and suggestive, even at the present hour, it would be remiss on our part not to give them in preference to any we might be inclined to make in the same particular direction:—"Thus early did the anxiety to possess a supply of wholesome water for the citizens of Dublin induce ingenious and patriotic individuals to suggest, and the Corporation to adopt and execute a plan for an artificial aqueduct for that important purpose, how long previously to the reign of Henry the Second is not known, but it has certainly existed six hundred years, while that of the New River which supplies London is scarcely two hundred years old. The proximity of the mountainous district to Dublin gives facilities to such an undertaking, but our

\* By Mr. W. Furniss Potter, M. Inst. C.E. Read before Institution of Civil Engineers, London, December 10th.



English fellow-subjects are not likely to give us credit for so great a refinement in comfort at the very early age the citizens of Dublin proposed it. The minute particularization that the pipe should not exceed the size of a goose-quill indicates that it was always flowing, and the value put upon it."

A constant water supply to the inhabitants of our cities has not yet become general. Indeed the London water companies, in the exercise of their vested interests and monopolies, have long resisted giving the people what is absolutely necessary for their health, cleanliness, and well-being. Comparing modern wants and population with those existing six or seven hundred years ago, and making all due allowances, still it is most creditable to Dublin in being so early in the field in providing for the due supply of what has been not inaptly termed the best gift of heaven—pure water.

### THE ROYAL DUBLIN SOCIETY.

AN evening scientific meeting of this society was held on the 16th ult.

In the Natural Science Section (with which the Royal Geological Society is associated), Rev. MAXWELL H. CLOSE, A.M., presided.

There were two papers, one by Professor Hull, F.R.S., "On the Occurrence of Crystals of Sodium Chloride in Chert of the Carboniferous Limestone;" the other, by Mr. G. H. Kinahan, M.R.I.A., "On the Irish Cambrosilurians and Silurians." The following were exhibited by Professor Hull—Fifteen maps of the geological survey of Wisconsin, by Professor T. C. Chamberlain; 21 maps and two sheets of sections of the geological exploration of the 40th parallel, U.S.A.; and 16 maps, two sheets of sections, and two panoramic views of the geological survey of Colorado.

In the Physical and Experimental Science Section (with which the Dublin Scientific Club is associated),

Dr. J. EMERSON REYNOLDS presided.

Dr. Wentworth Erek read a paper "On a new form of Constant Bichromate Cell."

Mr. G. J. Stoney, M.A., F.R.S., read a paper on a "Complete Expansion of Polarization stress in Gases, with its consequences."

Mr. R. J. Moss, F.C.S., read a paper on "The Oxidation of Iron in the presence of Vartrey Water."

A discussion followed, in which Professor Tichborne, Mr. Draper, Mr. Porter, and the chairman took part.

Mr. George Porte said they had heard a good deal of the bad effects of this oxidation, but they had not heard of any cure being suggested.

Professor Tichborne said the cure was to be had by adding the slightest amount of well water, containing alkali, or a little soda of potash.

Mr. Porte had tried that cure, but it was not successful.

Professor Tichborne said he only referred to steam boilers.

The chairman thought the remedy he had adopted in the case of house cisterns was a radical change—namely, the substitution of copper for iron in the cistern, and lead for iron in the tubes.

Professor Reynolds exhibited a simple form of mechanical filter for Vartrey water, and a sample of milk adulterated in a novel way. He stated that the milk, when subjected to the ordinary analysis appeared to be merely skimmed milk and not adulterated, the solids being present in the usual quantities; but on closer analysis it was found to contain gelatine in the proportion of slightly under decimal eight per cent. It was thus made to appear when tested by the ordinary instrument to have a higher specific gravity than it really possessed. This appeared to be an exceedingly neat mode of checkmating the analyst, knowing that he would not go one step beyond the ordinary investigation. Seven years ago this system of adulteration was practised by dairymen in some parts of

France. The milk in question was supplied by a contractor to a workhouse.

Mr. Fitzgerald, F.T.C.D., exhibited Mr. Kerr's experiment on the reflection of light from the pole of a magnet.

### THE SANITATION OF DUBLIN.

#### ABROGATION OF THE OFFICE OF MEDICAL OFFICER OF HEALTH.

WE take the following from the *Medical Press and Circular* of the 25th ult. In our present issue will be found a letter from E. D. Mapother, which is intended to afford an explanation. Apart from the statements made in the above-named journal, a little more light is necessary upon the subject, as we are certain further ventilation is inevitable. While admitting the sanitary condition of Dublin is very bad in some directions, and that the Corporation are to blame for past neglect, we will be no party on any occasion to endorsing charges which are not thoroughly true in substance and in fact. We yield to none of our contemporaries, professional or general, on this side of the channel or the other, in our earnestness in the cause of social and sanitary reform, but we will exercise our right to independent opinion on matters which transpire in our midst, and in a city with the ins and outs of which we are long and intimately acquainted with. We are led to make these remarks in consequence of more than one organ published in London greatly exaggerating matters which needed no colouring to call for both remonstrance and remedy:—

1. That Dublin is, without competitor, the filthiest and most miasmatic city of any size and position in the United Kingdom.

2. That the death-rate of Dublin and its suburbs is at the present moment 38.0 per 1,000, and the mortality of the city itself 30 per cent. worse than that of the most stinking slums of London or Glasgow.

3. That this condition of things is—to a greater or less extent—permanent.

4. That the poor of the city are lodged in horrible old ramshackle houses, often without fit privies, or ash-pits, or water-supply; but making up in stench and grime for the lack of whitewash and window-glass.

5. That the Public Health Committee of the Corporation, under whose auspices these things are done, has been officered by a Superintendent Medical Officer and a Medical Officer of Health, and a number of ex-policemen and other subordinates, constituting altogether a *coterie*, attached by a common bond of helpless inactivity and utter incapacity, to administer the functions imposed upon them.

6. That when the Public Health Act became law the Medical Officers of Health provided by the Act were, practically, set aside, and the old staff kept in office at the cost of a heavy expense to the citizens, and complete stagnation in the sanitation of the city.

7. That, with the exception of a feeble and spasmodic attempt to carry out the Artisans' Dwellings Act, the Public Health Committee has done almost nothing to remedy the unequalled fatality within their city, and—continuing to patronise the tenement farmers who squeeze monstrous rents out of the tumble-down dwellings of the poor—has at length, in consequence of a difficulty of finance, actually thrown up the sponge, and admitted its inability to continue even the nominal sanitary work which it has been doing.

With these facts before them, it is unnecessary for us to tell our readers that Dublin—of all cities in the world—most needs an active, energetic, well-educated medical officer of health, devoted to his sanitary work and to nothing else, and well paid for performing the Herculean task of redeeming the city from its ill name, and saving the lives of the poorer citizens who are now dying in scores from the most obvious dirt and neglect. To those who live within communication distance of the city, this need of a good officer to do that which a lazy committee will not do, has been ringing in their ears for too many years to be forgotten.

Will it be believed that it is at this juncture—with 60 deaths a-week over the usual excessive average—with small-pox rampant—with dirt triumphant—that the Public Health Committee selects to perpetrate one of its worst jobs?

Can it be credited that that committee has proposed to leave the city without any medical officer

of health at all? to pension off the present Superintendent Medical Officer at £120 a-year for life? and to put his duties upon the remaining Medical Officer of Health, with a considerable increase of salary? We have said that, if this proposition be carried, the City of Dublin will be, to all intents and purposes, unprovided with any supervising health officer, and we justify the statement by asserting that it is notorious that the medical officer of health who is to take the additional duty of superintendent medical officer is hardly able, by superhuman energy, to keep abreast of his present multitudinous employments. In addition to his appointment of medical officer of health, he holds that of public analyst to the city, and, we believe, to 28 out of the 32 counties in Ireland. He is a professor of chemistry in charge of a large laboratory, and bound to lecture and demonstrate in chemistry and physics, winter and summer, to a large class. He is, moreover, a busy author, and steeped to his throat in other medico-chemical work.

We have the greatest respect for this gentleman, and the greatest admiration for his energy; but we assert that it is physically impossible for him to begin to attempt to do justice to the sanitation of the city, and that it would be a monstrous and disreputable transaction to add that charge to his already over-burthened career.

We cannot permit the sanitation of the City of Dublin to sink still deeper into the quagmire in which, for so many years, it has been, and we feel bound to protest with all the emphasis of which we are capable against the proposal to rob the city of its only active sanitary officer. There is not a town of any respectability in the United Kingdom which is not provided with a medical officer of health, well paid for the special duty of working the sanitary department, and if a change is to be made in Dublin it should be the appointment of a thoroughly competent hygienist, young in years, able in body, active in mind, and engaged in no other pursuit. One such officer would be worth a dozen committees, or a host of subordinates, and we certainly look to the Dublin Sanitary Association, and every other organisation which labours for the good of the city, to put forth all their efforts to prevent the perpetration of this outrageous act.

### DISASTROUS "RESTORATION."

THE so-called "restoration" (says the *Academy*) of the Church of Lorch-am-Rhein has been most disastrous. Complaints of unsuccessful attempts at church restoration have for a long while past made themselves loudly heard in Germany, and this last affair at Lorch seems to have brought matters to a crisis. The church was famous both for the beauty of its situation and for the fairly good state in which it had come down from the fifteenth century: it has now been so mishandled both without and within that it is said by competent authorities to offend against every principle of architectural science. Nothing remains of the original work in the choir except the iron clamps which had been introduced here and there, in the course of time, in order to bind weak places together, and these, too, it is proposed to replace with new ones. Of the old piers nothing but the kernel can be said to exist, for they have been refaced and tricked out with Gothic finials of the last fashion, and the picturesque Renaissance tower has been destroyed. For the moment the work is at a standstill, and a second architect has been called in, to whom has been entrusted the conduct of the restoration of the two aisles: he is, however, almost hopelessly embarrassed by the labours of his predecessor. If he is forced, and it is said he will be forced, to continue the work as it has been begun, total ruin will be about the best thing that can be wished to this once valuable monument of Rhenish Gothic architecture.

THE FILTH OF TOWNS.—In its report of a recent meeting of the Coleraine Board of Guardians, the local *Chronicle* states that, a "letter, enclosing a memorial from the Dublin Town Council, was read by the chairman, with reference to the removal of filth from towns. As the matter was likely to create a good deal of discussion, the Board decided to take no notice of it at present." What a pity! as some of our northern friends might have afforded our D. C. information that would be valuable at the present time.



## A WALNUT SUITE, AND ITS COMPOSITION.\*

We will furnish the result of a dissection of a sitting-room suite, comprising a couch, a gentleman's and lady's easy chairs, and half a dozen of ordinary chairs to match, &c. This suite is but one of many others of the same kind at present being extensively manufactured, and was sold to a lady purchaser a few months ago as made of fancy wood,—walnut-wood, if we remember aright. In the entire framing (seat, rails, legs, arms, backs) there was not one mortise or tenon, but single dowels. The wood of all the articles was beech darkly stained; indeed, it was in a manner grained as painters grain hall-doors and shutters, only by a different method of procedure, staining material being dabbed on, and the surface polished over afterwards. This "handsome suite," for which a liberal price was paid, was thoroughly dishonest in make and materials, and any practical man could see without much scrutiny that it was made to sell. The narrow fascia moulding planted on the lower part of the framing rails connecting with the legs and backs was in no sense a moulding, but a very flat half-round, with a  $\frac{1}{4}$ -in. gouge groove on its surface. Instead of being closely fitted to the curve or sweep of the chair and couch rails and glued, it was nailed on. Were it even a good fascia or fascia-moulding, no nails should have been used, and such a vile system of planting on would not have been tolerated a few years ago by any respectable cabinet or chair maker. No respectable house at present, we think, would give countenance to such a system. The cross-bearing rails of the couch were not an inch in thickness, and were framed into the sides with a single dowel. The rails should have been  $1\frac{1}{2}$ -in. or  $1\frac{3}{4}$ -in., and instead of dowelling either tenons and mortises or dovetailing should have been employed. The upholstery of this drawing-room suite was the veriest "slop-work" that it was possible to conceive. Indeed, a whole detail of the manipulation would astonish the reader. Briefly described, however, we may say the couch, easy chairs, &c., were covered with rep, and, in common parlance, were "spring-bottomed." The rep had an edging of gimp to form a "genteel border" line of demarcation between it and the fascia moulding. The stuffing of the seat within was a composite of a variety of vile materials, of which the following was clearly discernible in greater and lesser quantities: alva marina, flock, list, ravelles of woollen and cotton stuffs, hay,—in fact, rubbish of all kinds, but not an ounce of any kind of hair. The framing and workmanship of this drawing-room suite was not only bad, but in the instance under notice wedges of wood were inserted to make close joints between the shoulders of the tenons and their seats. The house from which the above furniture was turned out does a brisk trade, and the manufacturer has many brethren who are engaged in turning out wholesale a similar description of "fancy goods." Are we not justified in holding up to reprobation such a class of house-furniture wherever manufactured, whether in the East or West End? In chests of drawers, and marble-top washing-stands and dressing-tables, articles in which a good trade is at present done, the only bit of value and cleanliness of finish about them is in the marble, as far as some manufacturers are concerned. The framework of a large number of these half-round or semicircular stands is of the most flimsy and disreputable kind. They are mostly all deal veneered, with the exception of the leg or claw in front. The two back stiles or rails (uprights) are often half-inch deal veneered, with a little quarter-round for a plinth or base moulding at foot. Once the marble top gets loose the stand soon loses its right to that title, and shortly goes the road of all "slop work." Cabinet, chair, and sofa work were once articles exhibiting good joinery, but to a large extent now bad single dowelling has taken the place

of double dowelling and dovetailing, and screws and nails, with coloured putty, are unblushingly used in open places in lieu of mortises and tenons and good glue joints. We are well aware that excellent English house-furniture is manufactured, but the "slop-work" system is rapidly extending, and we fear if some steps are not taken to counteract a most dangerous abuse the cabinet trade will be ruined and the export trade in such goods destroyed.

## THE IRISH CIVIL SERVICE BUILDING SOCIETY.

THE following is the story of the year's labours of the above society, as told by itself. It were to be wished that this society was really a building society, as it would afford us more satisfaction and prompt us betimes to commend it to the attention of the class of persons in whose interest it was supposed to be first established. The Civil Service Society has its great uses, we have no doubt, and has been found specially valuable in more directions than one; but a building society in the true sense of the term it is not. We have not time just now to enter into an analysis of the receipts and working expenses of the society; but were we merely in the position of contributing members, we would scarcely have reason to feel satisfied in it entirely with the annexed statement pronounced so "very satisfactory" by the officials or directors:—

"The balance-sheet and statement of accounts for the year ended 30th November, 1878, as certified by the auditors, Messrs. Craig, Gardner, and Co., public accountants, show that the progress of the society has been most satisfactory, although the period has been one of extensive commercial depression, marked towards its close by features of such a character as called for the exercise of more than ordinary caution. The receipts from all sources for the year have amounted to £463,104 as against £400,134 for the previous year. The amount advanced on mortgage has been £97,781, making a total of £710,668 since the formation of the society in June, 1864. In the deposit department the balance has increased from £176,627 to £186,936—a very satisfactory increase, considering the temptations to withdraw from such temporary investments presented by the extremely low prices of all permanent investments which have ruled for some time back. A favourable opportunity having offered for the replacing of some of the cancelled shares, your directors, acting on the power given them by rule 23, re-issued, on the Stock Exchange, 200 withdrawn or cancelled shares, representing £5,000 of capital, on such terms as afforded a premium of £4,250 16s., which has been added to the reserve fund, raising it to £9,250 16s. from £5,000, at which it stood in last year's account. The net profits for the year amount to £15,194 3s. 5d., out of which your directors paid an *ad interim* dividend at midsummer, at the rate of 10 per cent. per annum, which absorbed £7,922 2s. 6d., and have since declared a further dividend at the same rate, both free of income tax. The whole sum thus divided amounts to £14,401 9s. 6d., leaving a balance of £792 13s. 11d. Your directors recommend that £243 4s. of this balance be added to the reserve fund, making it up to £9,500, and that the remainder, £549 9s., be carried forward. The financial position of the society is an exceptionally strong one; its assets consist of investments in mortgages of lands and houses of ample value, with a margin of security periodically increasing, also investments in Government securities, immediately realisable; making a total of £357,878. By the terms of the "Building Society's Act, 1874," it would be within the powers of the society to hold deposits or other borrowed moneys to the extent of £231,278, being two-thirds of the amount invested on mortgages, whereas the actual amount so held is only £188,870—the remainder of the society's liabilities being to its own shareholders; so that the position of the depositors with the society is this, viz., that for every 20s. deposited, the society holds 37s. 10d. invested on the best and safest security. The year's working expenses amount to only £2,320 18s. 6d., being about 10s. per cent. on the receipts, as against 12s. per cent. last year. The directors who retire by rotation are P. J. Keenan, Esq., C.B., and A. H. Wyatt, Esq. They are eligible for re-election, and present themselves accordingly. The auditors, Messrs. Craig, Gardner and Co., are also eligible for re-election."

Who is the chairman for the new year? and what has been the course of the late meetings? Will the future be regulated by the past Parliamentary Committee reports and Treasury minutes, notwithstanding?

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## THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An ordinary general meeting of the Institute was held on the 13th ult., when the following were duly elected as officers for current year: *President*—John M'Curdy. *Hon. Secretary*—G. C. Henderson. *Council*—Geo. C. Ashlin, J. R. Carroll, T. Drew, C. Geoghegan, W. M. Mitchell, P. Neville, J. J. O'Callaghan, J. H. Owen, W. Stirling, S. Symes. *Treasurer*—S. Symes. *Auditors*—W. Gillespie, A. E. Murray.

It has been announced that the next meeting of council will be on the 6th inst., when a case of "Professional Practice" will be brought forward, and attention called to Mr. Burges's questions addressed to Royal Institute of British Architects, and the reply of that body.

We are glad to record a large addition to the ranks of our Institute—over thirty have been balloted for and admitted in the past month.

## BANGOR CATHEDRAL "RESTORATION."

THE Dean of Bangor, in a circular letter calling the members of the Restoration Committee together for this month, says:—"More than five years have now elapsed since the cathedral was re-opened in 1873, after the restoration of the choir and transepts. The work then completed involved an expenditure of more than £20,000. The work that remains to be done, namely, the restoration of the nave and side aisles, the rebuilding of the chapter-house, the levelling and fencing of the cathedral-yard, and the erection of the great tower, will not require so large an expenditure. Half of the sum expended upon the choir and transepts will probably suffice to complete all the work that remains. The erection of the tower may wisely be deferred for some time longer. But the restoration of the nave and side aisles, the rebuilding of the chapter-house, and the improvement of the cathedral-yard cannot be postponed much longer without grave hindrance to the life of the Church of the diocese. The concrete floor of the nave and side aisles laid down in 1873 for temporary use was not warranted to last for more than three years. Now, at the end of five years, it is beginning to give way. The choir and transepts, having been fully restored, are effectually warmed by an apparatus, the flues of which do not extend beyond their area. Thus for the warming of the nave and side aisles, forming the larger part of the church, no provision whatever has been made. The result is that during the winter months the mother church of the diocese is so cold that it can only be frequented at the risk of suffering and injury to health. That the house of God should be left in such a state of decay and discomfort while our own houses are so generally renewed and furnished with the conditions of beauty and comfort affords a contrast in which, I am sure, the religious feeling of the diocese will not acquiesce. The neglect of the cathedral could hardly fail to throw a chill over the diocese of which it is the centre. To postpone any longer the completion of a work so necessary would expose us to well-merited reproach. I venture to believe, therefore, that you will judge with me that the time is now come when a fresh effort should be made to restore the nave and side aisles, the chapter-house and cathedral-yard. It has been estimated that this work can be accomplished for less than £6,000; that is, less than one-fourth of the sum already expended upon the nave and transepts."

\* From a paper in a recent issue of the *Builder*, entitled "Abuses in House Furniture Manufacture."



### A THROUGH RAILWAY ROUTE TO INDIA.\*

We must now make up our minds to the main plan, and what we are to go for—whether the usual railway, or what is called a cheap railway, or a narrow-gauge railway. Upon the question of gauge, it may be said that a narrow-gauge is chiefly put forward as a means of providing a very small capital, in the first instance, and of economising resources. Otherwise, it is certain that in Europe, in America, and in India, the question is settled, and that no practical man will propose a narrow-gauge for a main line if he can get the usual gauge. If the railway is to be a continuation from Constantinople, it must be of the European gauge, because the trains will ultimately be carried across the Bosphorus, either by a bridge, which is quite practicable, or by a floating ferry. For a line passing through hot countries, there are very strong objections to the use of a narrow-gauge or such expedients, because, as has been well pointed out by a competent authority, Mr. E. B. Eastwick, C.B., they are intolerable to Europeans, particularly during long day and night journeys. They have been introduced in India, and the experience is not favourable. The narrow is the gauge of the South of India Railway, and Mr. Eastwick considers that in the hot weather it amounts to a negation of the use of the line by Europeans. The same is the case on the line between Lahore and Multan. The heat strikes through the roof, so as to be most dangerous, and the whole carriage gets heated to fever heat. Mr. Eastwick says that the speed of the narrow-gauge, whatever falsehood may be told, does not exceed ten miles an hour. The trains are always breaking down, when the wretched passengers are exposed to a fiery death for two or three hours. The Hindus get out, walk a mile or two to the nearest town, and take their food. Besides, as Mr. Eastwick observes, the narrow-gauge is next to useless for military purposes, and the transport of artillery. There is no financial necessity for resorting to any temporary expedients of a narrow-gauge, for the undertaking requires efficiency, and can yield remunerative returns to pay for them.

So far as the mutilating of the undertaking, by making the Euphrates portion alone, depends on financial expediency, there is no necessity for it and no justification, because the Asia Minor section is that which will, for the reasons already shown, pay best in the beginning. There are, however, other reasons besides those of finance, and they preponderate in favour of carrying out the whole undertaking. I agree with Lord Waveney, Sir Frederick Goldsmid, and Colonel E. Gordon, R.E., that at this period it is indifferent what route is put forward.

We may conceive, as a general line, one starting from Constantinople—Skutari, passing through Angora, Sivas, Diarbekir, and Mosul, to Baghdad, being joined by a line starting from Skanderoon, and passing through Aleppo. Such a line is here put down merely as a proposition, for the purpose of bringing the subject under consideration. There are, for instance, objections to the very line here sketched; but, undoubtedly, if we could get this line, or something like it, it would effect our purposes. For my own part, the question of individual lines is of far less importance at this time than we are apt to believe; because, if the line thus proposed were carried out, nearly every other plan would be also carried out, because they meet practical wants, and resources would then have been provided for their accomplishment.

When we come to the consideration of local lines in Turkey, then many of the projects which have put forward as main lines must be dealt with as local lines, and they will become alternative main lines. If Mesopotamia, for instance, is still what it was for

thousands of years, and what those who know it believe it can be brought to be, then no one line on either bank of the *doab* will be adequate. Produce will not afford to pay to cross one or two troublesome rivers to meet a railway station a hundred miles off. A trunk line is a very valuable thing, but it can neither receive food nor nourish beyond a limited distance, while its wholesome influence stimulates the creation of feeders.

Adopting as a plan for consideration the one before us, which will do for the purpose, we may consider what it will effect. It will carry passengers and traffic from Europe eastward and throughout the route, at the same time stimulating local production. It will enable the European forces of Turkey to operate freely on the exposed frontier, and it gives the opportunity for an Austrian force to be brought to bear. It provides the means for an English European force to be brought from the Mediterranean, and an Indian force from the Persian Gulf. It allows the emigrants of Western Europe, artisans and others from Germany, Austria, and the Danube, to carry their skill and labour into Asiatic Turkey. It is to the several results of such emigration that the advance of Rumania is greatly due, and by which that of Servia, Bulgaria, and Rumelia will be promoted.

We must not leave out of sight what is of much importance, the reaction of the through route in stimulating and strengthening Constantinople itself, Rumelia, Bulgaria, Servia, and Bosnia. The same effect will be produced in Greece, and the islands, in Italy, in France, and also in Odessa and Southern Russia.

To the through route subsidiary and alternative communications can be made from Marseilles, Brindisi, and Salonika.

One of the most distinguished practical authorities on India, a member of the Council, has called my attention to the consideration of the danger of interference with the railway from wild tribes, and this idea is one rather suggested by the telegraph, which is liable to such interferences, but the railway is better able to defend itself. No case occurs to me, in the old or new world, of a railway being stopped by wild tribes, but wild tribes have been effectually stopped by railways. In the small portions of the through route where there could be risk from wild tribes, the matter would have been settled before the opening of the line, as new relations are established with these tribes which effectually dispose of the difficulty. Their employment as carriers, guards, and in various ways, and their share in the new wealth, settle the relations of most of them with the railway, while each station becomes a police station, and the telegraph and the train can bring down summary treatment on marauders.

The section through Asia Minor will effect the objects that have been already referred to. At the same time it will ultimately have connection with the coast, at all events, with Smyrna, and thus increase the commercial and military capabilities of the undertaking.

Whatever ports may be hereafter built, we have two available under cover of Cyprus, Skanderoon, and Ayas, opposite to the north. Ayas has been more than once referred to in the *Journal* by myself, in 1871 (Vol. xx. p. 27), and again on the 30th of August last (Vol. xxvi. p. 87). As the merits of these and other ports are under the personal examination of Captain Cameron, R.N., the African explorer, we shall obtain further information. Mr. J. L. Haddan, late engineer to the Ottoman Government, has paid special attention to Ayas, and he has written on this, as on many subjects connected with the engineering of the country, and on his own plans, for what he has denominated a pioneer railway.

The Euphrates or Tigris section will serve as a portion of the through route and as a local section, developing Smyrna and Mesopotamia. Whatever the terminus on the Mediterranean, that terminus will provide an efficient seaport and a commercial

entrepôt. That section will also serve to let in, should occasion arise, European contingents from the West and Indian from the South, to put down local rebellion and foreign aggression. With these questions Mr. S. J. Eldridge, H.M. Consul-General in Syria, has very ably dealt.

The continuation of the railway from Baghdad to Bussorah, or to India, is an ulterior affair, for, as Consul-General Nixon has shown in his last report on the trade of Baghdad, the steamers of the Euphrates River Company run from Baghdad to Bussorah in three days, and from Bussorah to Kurrachee, a distance of 1,574 miles, in six days. From Baghdad to Skanderoon, the Consul-General estimates at 60 hours. He believes from the growth of the Baghdad trade that the railway will pay.

This subject of the through route to India has seldom been brought forward by others or myself but what it has been treated also in reference to our connection with Persia, notably so on the occasion of the paper read before the Indian Section of the Society of Arts, by Sir Frederick Goldsmid, on 20th April, 1877, under the title of "The Existing and Possible Commercial Communications between Persia and India." This brought up the question of the entrance into Persia by the Karoon river. Although at an angle to the through route, this is, in fact, a direct access from England to Persia, and preferable to the northern route through Russia. This has not been looked after by our Government, and the concession is in the hands of a French physician. If this plan be carried out by him or others, it must provide a feeder for the through route. Thus, one large matter at stake is the present and the developed trade of Persia.

Looking to the influence which Indian enterprise has already exercised on the trade of the Persian Gulf, we must look to its further effect when it can be made to penetrate above Baghdad. It is by the careful enumeration of resources, present and prospective, that we shall best be able to estimate the nature of the undertaking we have to carry out, and in the same way as it is not to be regarded as only military or political, so it is not to be regarded as chiefly commercial.

Undoubtedly, so far as India is concerned, the advantages of the through route, moral and material, will be very great, but although we are justified in looking at it to a great degree as affecting our Indian empire, it does more. Since the opening of the Suez Canal, our connection with Australia, from this side, has acquired more importance. The through route, without being, at the present time, essential for Australia and New Zealand, is of material value. The working of the Pacific Railway and of a steam service from San Francisco to Australia creates a rivalry with the transit by the Suez Canal and the Cape, and makes the value of time and quick communication to the Australians still more sensible.

Although Western Australia is still backward, Australian settlement is spreading to the north. Queensland touches the north shores. South Australia is advancing its occupation in that direction. Although we cannot exactly foresee, we must allow for a large expansion of trade in Northern and Western Australia and New Guinea.

Thus Australia and New Zealand have a distinct interest in the through route, because they have military and political objects to regard, as well as those of transit. Since the Crimean War the Russian naval ports have been pushed one thousand miles south to a sea always open in winter. What this means the Australians can understand, when the Russians, while making speeches about peace, are preparing privateers in the American ports of the Pacific and Atlantic to attack English and Australian merchantmen; Sydney and Melbourne have been compelled to look to their home defences.

The contributions of the Australian colonies and New Zealand to postal and telegraph services are a dead expenditure, but to a

\* From paper by Mr. Hyde Clarke. Read before Society of Arts, on Wednesday, the 11th ult., and published in its *Journal*.



through railway route they need not extend further than a temporary advance.

It is because the Suez Canal transit is so valuable to us, to India, and to our Australian communities, and can be so easily closed, that it is absolutely necessary to have an alternative route. We can no longer expect that the Pasha of Egypt will be able to carry out his scheme for a railway to Upper Egypt and Berenice on the Red Sea, nor would that, perhaps, be safe from the dangers affecting the Suez Canal. We are, therefore, driven to support the through route.

#### SOME NOTES ON THE FIRST RAILWAY IN IRELAND.

It is somewhat singular that the first completed railway line in Ireland, the Dublin and Kingstown, should have remained for so many years the only one in this country, though the benefits of railway travelling must have in the meantime become apparent to the many. Seven miles of a run was small, but during the progress of the works of the Dublin and Kingstown line, and at its opening for traffic the undertaking was considered one of great enterprise and magnitude. Very many yet in our midst remember well the turning of the first sod and the opening of the line in the autumn of 1834. The original intention was to have commenced the railway at the rear of the College buildings, and to have skirted the College Park parallel to Great Brunswick-street. Had this intention been carried out, the starting point would be about where the Clarendon stables and Queen's Theatre at present stand. Utilising the College Park, our readers may remember, formed a portion of a recently-projected scheme for extending the Kingstown line into Grafton-street, but the park in this instance was to be skirted on the Nassau-street side. We are told in a contemporary account respecting the first threatened infringement of the College Park that "vague fears, misrepresentations, and other causes created an outcry against such a proposition, which it is to be hoped at a future and not distant period may still be realised." Well, upwards of forty years have passed by, and still the College Park is intact, and a strong opposition still exists to allowing the railway company to encroach on the ground of Trinity College. At the time before the commencement of the works of the Dublin and Kingstown line, great discussions took place in the press, and the subject gave rise to a large amount of varied correspondence. Those interested in mail coach and stage coach interest, canals, way-side inns, posting, and kindred interests were loud and irate in their complaints, and all sorts of disasters to the trade of the country, and men and horses particularly, were prophesied; but the success of the Liverpool and Manchester Railway, which was opened in 1830, tended to assure the thoughtful-minded in this country that railways were destined sooner or later to revolutionise the trade and traffic of the kingdom at no very distant date. It will interest our readers to give them some idea of the car and carriage traffic, with the number of persons that passed to and fro from Kingstown a short time previous to the opening of the railway line. The traffic on the Blackrock-road was considered a great one, and the Dublin jarvies of the day were up in arms against all railways and new-fangled notions. Passing to and from the "Rock" from the 12th of February, 1831 and the 13th of February, 1832, between six o'clock in the morning and nine at night—of private carriages, 36,217; hackney carriages, 7,272; private cars, 133,537; public cars, 186,108; gigs, 24,175; saddled horses, 46,164; carts, 63,133. The above enumeration, which was believed to be correct, was the basis on which the railway company founded the calculations of the probable profits to be derived from the road itself. Several incidents might be related concerning the difficulties encountered in carrying out a portion of the works, and the means

adopted for overcoming them, but it would be tiresome to detail them, and otherwise they were common to all new undertakings of the kind. Steep gradients and sharp curves were things that were carefully avoided by our early railway engineers, and they were careful not to run risks if they could be avoided. Our railways gave rise to construction of many oblique bridges, or, as they were called, skew arches, which entailed much expensive labour and materials before the iron girder principle was adopted at a later date. On the little Dublin and Kingstown line, as well as the Dublin and Drogheda at a later date, skew bridges were rendered necessary on account of the intersection of some roads meeting the line at angles other than right angles.

We find in a sketch written about the time that the Kingstown line was being opened, that "some difficulties appear to have occurred in getting the railway past the distillery near the docks, at which it ought to be mentioned that a large station or dépôt is provided for the accommodation of trade. Over Barrow-street the arch is built with what is technically called knee'd or elbow quoins, the stones being cut so as to form an oblique or skew bed on the face of the ring, and to return to a square bed within." The quoins here were granite, but the rest of the arch stones were of limestone. At this place, too, the railroad contracted to a breadth of 30 ft. The bridge over the Circular-road is square, but that over Irishtown, to use the description of the time, its "angle of intersection is only fifty-three degrees, and a granite elliptical arch built on the oblique principle, has been introduced with good effect."

We had no locomotive builders in Dublin at the time to profit by undertaking the construction of the railway engines for the Kingstown company. The first six locomotives supplied were of English make, three being from the manufactory of Messrs. George Forrester and Co., of Liverpool, and three from the house of Messrs. Sharp, Roberts, and Co., of Manchester. Compared with the present scientific and compact construction of our railway locomotives, the old forms of both firms present a curious contrast. The Forrester engines had horizontal cylinders, and fore and hind wheels of unequal diameters, elastic pistons working with improved valves, and a small number of tubes in the boiler, &c. The Roberts engine had vertical cylinders, wheels alike, bell-crank motion, solid pistons, patent valves without friction, and numerous tubes, &c. There were first, second, third, and fourth class carriages in the first year of the Dublin and Kingstown Railway. The third was open at the sides, but the fourth was entirely uncovered, and with nothing but ranged seats. The railway carriages used on the Kingstown Railway for some years were home-made, and built by Mr. Dawson, of Capel-street, and Messrs. Courtney and Stephens, of Blackhall-place. At the commencement only a few of the carriages were made at Manchester. The wheels, axles, &c., of our Dublin-constructed railway carriages were, however, constructed in England. We remember up till 1844-5, if not later, Mr. Dawson was engaged in building railway carriages for lines in Ireland; and for a short time Messrs. Hutton, of Summer-hill, carried out some contracts. It is to be regretted that the trade in railway carriage building in Dublin was not continued, and conducted with more enterprise and spirit.

On Saturday, the 4th of October, 1834, the first trial of the steam engine, "Vauxhall," filled with ladies and gentlemen, was made on the line of railway from Dublin to the Martello Tower at Williamstown. It was intended to commence running carriages on the line in the month of September, but delays occurred in the execution of the works. The trial trip of the "Vauxhall" is said to have given satisfaction, "not only as to the rapidity of motion, ease of conveyance, and facility of stopping, but the celerity and quickness with which the trains passed, by

means of crossings from one line to another. The distance was two miles and a-half, which was performed four times each way at the rate of about thirty-one miles per hour. The control over the machinery was complete; the stopping and reversing the motion was effected without a moment's delay." So runs the record; though we are inclined to believe that the speed attained was not so high at the time as stated.

On the 9th of the same month a train of carriages, with ladies and gentlemen, proceeded the entire length of the line from the station at Westland-row to Salthill. There were eight carriages attached to the train—one of first-class, three second, and four of the third class.

The first trip of the locomotive engine named "Hibernia" (built by Roberts) was from Salthill, performed in fifteen minutes, and back again to Dublin in twenty-three minutes. A second trip by the "Vauxhall" performed the journey to Kingstown in fourteen and a-half minutes, and back to Dublin in twenty-two and a-half minutes. Several other trips were subsequently made before the regular running took place.

The late Mr. Classon, in an address to the citizens of Dublin on his attempt to establish an omnibus system on a plan similar to that carried out in London, affords us an insight into the prevailing state of public opinion at the period of the opening of the Kingstown line. The probable injurious effects which a successful railway must have on the drivers of cars and carriages were freely canvassed and discussed in more directions than one. Mr. Classon had a practical mind, and did not admit vested interests; and utterly denied that the interests of carmen would be prejudiced—on the contrary, he held they would be promoted. He assumes, as admitted, if low prices induce consumption, the low price is likely to make the most money. He pointed out if he sold in a day six articles at a profit of sixpence each, he would make more than if he sold one article in the day at a shilling profit. He argued it was precisely the same with the carmen; let them agree to charge among themselves no more than sixpence to a single person for a set-down within a mile, and they will, he says, get six times their present employment. He asserted that twenty omnibuses—were his suggestion acted on—would only be making customers for the cars, by inducing the walkers to become riders at the low price of twopence a seat. When people began to like the indulgence of the omnibus, he believed that presently they could not do without the cheap run on the car from the cross line, which the omnibuses don't. The jarvies of Dublin, or the people who patronised them, pretended not to understand Mr. Classon's argument, so several more years passed over before a regular omnibus system was started in Dublin. With the railways, as sensible men foresaw, came more cabs and hackney cars, and eventually omnibuses and trams.

The following anecdote of the late Mr. Bianconi has its value, and is worth giving in connection with our subject. In the early period of his operations he determined to run a well-appointed car on a certain road, the population and trade of which line he considered might, if he fixed the fares at a reasonable price, justify the undertaking. For the nonce he was disappointed; his cars went empty. The genius and tact of Bianconi were, however, equal to the occasion in a remedy, and of converting a first failure into a success in the second attempt. He resorted to a fair expedient, and started under another name an opposition car, and ran at a ruinously low price. This brought at once the public to the road. One morning he suddenly withdrew the opposition car, and raised the rates on the other to a fair and remunerative price. The people, having found the benefits of cheap travelling and accommodation, were not inclined to relinquish them, and both parties were soon satisfied with their advantages. Bianconi certainly paved the way to cheap travelling in Ireland, and made his own and the fortune of others by



his spirit and enterprise. His well-appointed system of cars through a large part of Ireland was a sort of pioneer to our railway communication.

## CORRESPONDENCE.

### THE ROUND TOWER AT KILMACDUAGH.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I beg to acknowledge the receipt of your note of the 23rd inst., and to submit the following details of the excavation of the interior of above tower. The facts brought to light ought to be of considerable interest as regards the vexed question of Pagan *versus* Christian origin of the Round Towers, so long and ably discussed by antiquaries. The peculiar leaning of the tower, and its cause, which has long been a puzzle, is now made clear by the fact that its foundation has been laid upon vegetable earth of the softest description—so soft that people now-a-days, having any knowledge of building, would not erect a mud cabin on such a foundation.

In the first place, the tower has been erected on a graveyard that must have been long in use previous to its erection; and that that graveyard was Christian there can be little doubt, if human skeletons found underneath the foundation, and facing eastwards, be any proof of its having been such.

The door-sill is 26 ft. from the top of base or plinth. The interior was filled up to the level of door with accumulated *débris* of the following description:—The first 2 ft. was composed of partly-decayed twigs, the deposits of jackdaws, and a few of the fallen cap-stones; the next 4 ft. with stones of cap and limo rubbish exclusively; the next 3 ft. with decomposed twigs, same as top layer, mixed with small human and other bones; the next 3 ft. with brown earth mixed with ashes of a reddish hue, small pebbles, small human and other bones, principally ribs of the human frame; the next 9 ft. 10 in. with brown earth, principally ashes of a reddish hue, mixed with a large amount of small human bones, and bones of the lower animals, oyster shells, sods of turf, a little charcoal, and a few pieces of brass. All the bones were small, and such as would be carried by birds, and were found chiefly close to the wall all round. The underneath 6 ft. 2 in. was packed with small-sized stones, with very little rubbish. The packing in this case was by no means accidental, but was done by the builders to form a footing on which to stand and scaffold, for the stones used in packing were clean, weather-worn, and identical with those used in building the inside face of wall from this point to the level of door. The diameter of interior from last 6 ft. 2 in. is from 5 ft. to 5 ft. 2 in., and is faced with large unhammered stones in the rudest form, just as if it were built against a bank. The above figures make 28 ft. from door-sill to bottom of foundation-course, both inside and outside.

The next stratum immediately underneath the foundation, and from 18 in. to 2 ft. deep—to yellow clay or virgin earth never disturbed—contains no building rubbish, but is composed of rich vegetable earth, containing a large amount of human bones. One skeleton was found lying across from west to east, the head west side 12 in. in from face of wall and 18 in. underneath foundation. There are two other skeletons underneath the foundation north side, and facing eastwards also, the principal bones of shoulders, arms, ribs, and a portion of spine have been found in proper position with the skulls; but the remainder of skeletons run far in underneath the wall.

In another grave, deeper than those referred to, was found the hip, thigh, and shin bones of a fourth skeleton, the head of which is far in underneath the foundation, south-west side; the direction of this skeleton was north-east, and its depth 2 ft. 6 in. under foundation. The skulls of three of the above skeletons have not been disturbed, so that

any persons wishing to examine the place can do so, and satisfy themselves as to the truth and accuracy of the above statements. But let who will examine or investigate the matter, one thing is certain and visible, and that is that the tower was erected on early Christian graves, the settlement of which through immense pressure, caused the tower to sink and lean over to south, the earth being softer on that side than elsewhere. Any person giving the subject attention, and viewing the internal construction of this tower, would, I think, scout the idea or theory put forward by writers in support of the pagan origin, viz., that they were intended for mausoleums or sepulchral monuments. It cannot for a moment be assumed that the skeletons found at Kilmacduagh could by any possibility have been deposited there subsequent to the erection of the tower; or that the small bones found in the excavation near the surface ever belonged to hodies interred therein, for there was not one skull or one large bone found above the level of foundation. The Rev. Father Fahy, P.P., Peter's Well, a gentleman who has given the subject of the Round Towers his most anxious study, and made them the subject of a lecture or two in Gort, has examined the tower in company with the Rev. Richard Burke, C.C., Gort. Before I received your note I asked him to write a letter to the IRISH BUILDER on the subject, and he promised me that he would do so.

Dec. 28, 1878.

A. SCOTT.

## INSPECTORSHIP OF IRISH LIGHTS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In a late issue you were so good as to advocate the very natural claim of Captain Boxer, the assistant inspector, to the appointment left vacant by the retirement of Captain Morant, and no one could possibly suppose that a man who was so eminently fitted for the post would be walked over by an outsider. The wretchedly lame excuse is, that to meet the tactics of the Board of Trade, a "dodge" should be resorted to (how respectable, how nice for such a body as the Department of Irish Lights), and by allowing Boxer to hold his post they could get in an inspector, and so give a little patronage to Whitehall Gardens, in spite of the "order in council," and oust poor "Paddy." Now there was no necessity for two inspectors, one officer for the lightships being that was required, and until 1862 there was no more. Previously to that date the engineer performed the inspection, and has done so ever since; for what could a navy officer know of light-houses? As to the economy of the dwellings a respectable female would be best suited for that duty.

From the captain of the gallant "Thunder-bomb," to Lieutenant Billitaylor of the "Bellyroughan," all the tag-rag and bob-tail of the navy were candidates, and the following from the *Naval Gazette* will inform your readers as to the happy man, who, not having Sloane to coach him, as he did all his predecessors, will have uphill work:—

"Retired Commander Joshua Cole, R.N. (List W), is the officer selected by the Commissioners to fill the vacancy of Inspector of Irish Lights and Lighthouses. Captain Henry K. Leet (Retired List U), who was also a candidate for the post, lost it, we are informed, by one vote only. Commander Cole is an old gunnery officer, and has recently been engaged in experiments with the Silber and other lights. He was fortunate, also, in having the strong recommendation of the Admiralty for the appointment. Amongst the candidates were three flag-officers, several captains, and many Naval officers of lesser rank."

But Joshua was still more fortunate in being a bachelor, some of the influential officers having "but one daughter to marry at home!" and he may find himself a burnt Cole shortly. I don't begrudge him the place, but I do think it is time public opinion was brought to bear on a senile conclave, who are oblivious of the requirements of the department they are supposed to preside over, and that some sweeping change is made,

and one good, well-paid man, be got to do the work so lamentably attempted by the grocers and corn factors of Carlisle Bridge. S.

## THE MEDICAL OFFICERS OF THE CORPORATION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I feel bound to state that the Public Health Committee are innocent of having originated any job or ill-advised economy, as the proposal to amalgamate the posts of Superintendent Medical Officer and Medical Officer of Health came from me, and they were convinced it would be of public advantage. In no other city did the offices co-exist. Under the new act the fifteen dispensary physicians become medical officers of health for their respective districts, and with, as I hope and believe, increased salaries. The discovery of infectious cases and of many unhealthy conditions within the homes of the poor, must always rest mainly with them, while the machinery for isolation, removal to hospital, and disinfection, can be devised and supervised by the Superintendent Medical Officer. He also deals with vital statistics, chemical and other trade nuisances, water supply, sewerage, &c. The chief medical officer is not engaged in medical practice (which, according to the English Local Government rules and public professional opinion, unfits the health officer of a large city), and as is usual in all laboratories, his analyses are mostly done by assistants; he has, therefore, time for the new functions. As to the fitness of Dr. Cameron it is quite superfluous to speak, for he is recognised by the sanitarians of the United Kingdom, America, and the Continent as one of the ablest and most energetic health officers living. As he has faithfully served the Corporation for nearly seventeen years, he is by two years the senior colleague, and not the assistant of your obedient servant,

E. D. MAPOTHER,

Superintendent Medical Officer.

Dec. 26th, 1878.

## THE PARSON'S GRATE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—On public grounds and for the good of the community, may I ask you to insert the following remarks. Some idea may be formed of the discontent with our present system of warming, from the fact that I have received in ten days more than 1,000 letters, complaining of insufficient warming, and requesting instructions for constructing the parson's grates. The letters still continue to come in large numbers. I would venture to suggest, that these grates are especially desirable in railway stations, board schools, and other large areas, for they can be inexpensively adapted to the agricultural labourer's cottage or to rooms of large dimensions. I speak from more than twelve months' experience of their use. For a room 30 ft. by 20 ft., a grate 24 in. wide and 14 in. high would give a superabundance of heat, and its cost, including the setting, need not exceed about £3. If required for richly-furnished rooms the ornamental grates might be costly, according to desire. At present our railway stations are cheerless in winter. Not only do we get much more heat from a like quantity of fuel, but the cost of attendance is considerably less. As at present constructed, the heat is carried up the chimney instead of being diffused in the room. The drying effect of these grates is surprising, and especially valuable in country districts during the moist cold season; instead of drawing the outside air through every crevice, as is done by the strong drawing registers, these grates heat, dry, and expand the air which is in the room, so that one feels warm all over, reminding one of summer, rather than of winter. With these grates, the floor is the warmest part of the room, instead of (as at present) the coldest. Some idea may be formed of the heat given out in the proper direction, by the fact that kettles and saucepans will boil



almost as quick on trivets in front of the fire as on the top; and toast can be very quickly made—I expect we shall soon see kitcheners made on this plan. A lady friend of mine said to me,—"I cannot make toast at any one of my strong drawing register stoves, but have to go to the kitchen grate." The heat went up the chimney instead of coming into the room. I estimate that there are nearly ten millions of fire grates in the United Kingdom on the wrong principle; if so, what a scope for reform! Another advantage is, that the fire may be left without attention for 4 or 5 hours, the bottom being of fire brick, is red hot. In fact, it is not uncommon to find fire still burning in the morning—this is valuable for bedrooms. It requires very little poking, a poker of  $\frac{1}{4}$ -inch iron, sharp pointed, 18 in. long, and weighing 8 ounces, is all sufficient. In these grates, the smoke from the coal is converted into flaming gas, thus not only giving additional heat, but also preventing the fouling of the chimney, while increasing the up-current in it—in fact, it first produces flame, then coke, and then burns the coke to an incombustible ash—this is perfect combustion. Smoky chimnies are thus abolished and chimney-sweepers will be in less request. The grate may be described as a long, deep, but narrow trough, with fire-brick ends, back, and floor, the front is an iron hurdle, having from 6 to 10 bars of round iron  $\frac{7}{16}$ th of an inch thick, with intervals of  $\frac{1}{2}$  in. A trough 16 in. deep and 14 in. wide, would heat a full-sized room, containing 450 superficial ft. The interior of the grate is only  $4\frac{1}{2}$  in. from back to front at its base, and  $5\frac{1}{2}$  in. at the level of the top bar. This thin stratum of coal permits the air, which enters only through the front bars, to circulate freely between the coals, and thus causes perfect combustion. Except when fitted to previous register stoves, the floor of the grate is level with the floor of the room; when applied to existing stoves, the trough is fitted into the grate. J. J. MECHI.

#### ARCHITECTURAL RESTORERS AND ARCHEOLOGICAL PRESERVERS.

THE "Battle of the Styles" is likely to be eclipsed by the battle that now rages between the Restorers and anti-Restorers. There is much to be endorsed and with justice on both sides, but to fix the happy medium for the contentment of both parties is very difficult, if not impossible. The course of architectural "restorations," so called, has run a longer course than many imagine, and much good has undoubtedly been done during its reign as well as harm. As carried out within the last dozen or twenty years, church restoration unfortunately has not been judicious preservation, but a pulling to pieces of old edifices or a nearly entire rebuilding of them according to the preconceived views of the architects engaged, or the churchmen engaging them. On the other hand, if the views of the anti-Restorers were carried out in their simplicity, many of our ancient buildings would need to be perpetually shored up or supported on stilts and crutches; for without new masonry, lime and stone, and good workmanship—all implying re-building, the old buildings could not be maintained. A rather interesting quarrel is now being carried on in England between Gothic architects, archaeologists, and antiquaries, on the one side, and men of the same professions on the other, only the archaeological and antiquarian section on the side of the anti-restorers seems to preponderate. The bone of contention now is the nave roof of St Alban's Cathedral. The restoring architect at St. Alban's is Mr. J. O. Scott (the son of the late Sir Gilbert Scott, we believe), and he has for his antagonist Mr. George Edmund Street, the architect of the New Law Courts, London, and the late restorer of Christ Church Cathedral in this city. Mr. Street traverses the deductions, statements, and measurements, of Mr. Scott, and the former is backed by a good muster of the profession who demand the

preservation of the old flat roof of the nave of St. Alban's, and loudly protest against the raising of a steep or high pitched roof in the instance under notice. Since the first protest was publicly made and gathered strength, the Restoration Committee and their Architect have to some extent held themselves amenable to the strong opinions expressed; and now it seems Mr. Scott, with the concurrence of the committee, has agreed to preserve as much as possible of the old roof by embodying it out of sight in the interior of the steep roof, and making the latter to some extent act as tie to the former (or may be *vice versa*).

The discussion about the restoration at St. Alban's has run a rather eccentric or zigzag course for the last few months. First, we were told, as Mr. Street says, that the nave roof was rotten and beyond repair; but now we are informed by the restoring architect and his friends that the roof is a most valuable one, and capable of repair. To those among our readers who are greatly interested in the subject we would refer them to Mr. Street's letter, the report of the Faculty Committee by Mr. J. O. Scott, read at a general meeting of the St. Alban's Archaeological and Architectural Society; the paper read at the Notes and Queries Society, Liverpool, by Messrs. Caine, Morris, Huggins, and others; as also a paper by Mr. John J. Stevenson, read at the Society for the Preservation of Ancient Buildings. In these papers, which have been published in the *Builder*, and some other of our professional contemporaries at length, the interested will find the question of Restoration and Anti-Restoration pretty fully discussed from more than one point of view. The question at issue, apart from prejudice and professional jealousies, is a very interesting and instructive one, and is still capable of more common-sense debating than it has yet received.

#### A CHANT FOR 1879.

Ring the bell, and draw the curtain up!  
 Hopeful again we make our New Year bow.  
 Pass around, old friends, the friendly cup,  
 And let us drink to sweat of brain and brow.  
 Once more we stand through good report and ill,  
 To preach the creed we've preached for twenty years—  
 The cause of Health and Art and Craftsman Skill,  
 The only cause in which success appears.  
 To Educate the Man, has been our aim,  
 For knowledge well applied is lasting wealth;  
 And education worthy of the name  
 Implies a knowledge of the Laws of Health.  
 All hail, then, honest workers of our land,  
 Toiling in Study, Workshop, Mart, and Mine!  
 'Tis by your labours conquests great and grand  
 Can raise mankind in Eighteen Seventy-Nine.  
 C. C. H.

#### NOTES OF WORKS.

New buildings for the Carmichael School of Medicine are to be erected in Aungier-street from the designs of Mr. G. C. Henderson (of the late firm of Henderson and Murray), 22 Bachelor's-walk. The building contract has been taken by Messrs. Fitzpatrick, Brothers, Belfast and Dublin; that for iron-work, columns, girders, &c., by Mr. Wm. Turner; for Vielle-Montagne zinc roofing by Messrs. Braby and Co. The cost will be about £5,000, exclusive of internal fittings. We hope shortly to present our readers with a perspective view of the building.

For the erection of a new parochial hall at Clontarf, we understand that three plans have been submitted to the committee by the following architects—Mr. Phillips, Mr. Morley, and Mr. G. C. Henderson. Those sent in by the latter gentlemen were approved of, and forwarded to John E. V. Vernon, Esq., the lord of the soil. The

estimated cost (£600) will necessitate certain modifications in the design previous to its being carried out.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the last meeting of the Institute held before Christmas there was a strong accession of new members. Mr. Charles Barry, President, who occupied the chair, said that thirty-three members, the number newly elected was without precedent on any previous occasion. Among the list we find the name of Mr. George Wilkinson, of this city. The next meeting of the Institute will take place on the 13th inst., when a discussion on Captain Burton's paper, "The Remains of Buildings in Midian," and Lieutenant Conder's paper "The High Sanctuary at Jerusalem," will be resumed.

#### HOME AND FOREIGN NOTES.

THE METROPOLITAN SCHOOL OF ART.—By an announcement in our advertising columns it will be seen that the several classes in this school will be resumed on the 8th inst.

GAS APPARATUS.—The Gas Committee of the Corporation of Manchester propose to hold an Exhibition of Gas Apparatus, including engines and all appliances for cooking, heating, and ventilation.

There are rumours as to the lighting of the Cope-land Islands with gas. We can hardly think they will come to anything as yet, it being only about ten years since first mooted! The amount of red tape is as yet inconsiderable, not quite a ton weight.

The Commissioners of Irish Lights are about introducing the electric light into the upper tower at Wicklow, spite of the wretched example of the North and South Foreland. It is hoped that if they use a glass apparatus they will get a proper one as at Cape Grienez, and not have the white light broken up with an ordinary lens, as it was some few nights ago at Westminster.

#### TO CORRESPONDENTS.

THE NEW YEAR.—Apart from our opening address we may shortly have some words to say to our general readers, in their own interest and ours.

"A CORK ANTIQUARY."—The buildings are scheduled in the list under the Irish Board of Works. Your notes respecting the nature of the repairs will be accepted at any time, with the drawings "before and aft, &c."

J. O'R. (Kingstown)—We do not clearly understand your complaints, or who you desire to hold amenable.

W. J. (Ennisworthy)—You can enclose postage stamps.

RECEIVED—H. R. (cancelled)—R. E.—A. Builder—T. C.—A. Ratepayer—A. Citizen—M. D.—R. H. A.—P. J. D., &c.

#### NOTICE.

A Title-page and Index to Vol. XX. of the *IRISH BUILDER* is sent to subscribers with this issue. Non-subscribers can procure copies at the publishing office on payment of Two pence. The volume for 1878, neatly bound (price 9s. 6d.), is now ready.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

41 GEORGE'S-STREET.

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**MESSRS. EARLEY AND POWELLS** beg to announce that Messrs. John Hardman and Co., of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

Earley and Powells have added to the above mentioned business the Painting and Staining of Windows for ecclesiastical and domestic buildings, under the management of Mr. Henry Powell, who conducted the Stained Glass Department of J. H. and Co., Birmingham for many years.

Mr. Thomas Earley is the only Church Decorator living who was taught his profession by the late A. Welby Pugin.

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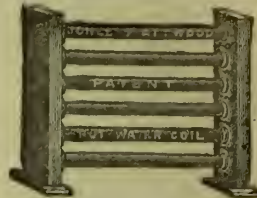
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## THE IRISH BUILDER.

VOL. XXI.—No. 458.

## CO-OPERATIVE ART, HANDICRAFT, AND TRADING.



S advocates of the co-operative principle in labour and dealing, fairly conducted, and for the elevation of the workman, we have on several occasions expressed our views; but there is another and serious

side to the important question which is forcing itself upon the attention of the country, and which is very likely to receive attention in the next session of Parliament. We allude to the establishment and conduct of co-operative stores by Civil Servants of the Crown. The ordinary trader or shopkeeper has to pay rent, rates and taxes, and to keep a number of assistants, who are in most cases fed as well as paid; but in the instance of Civil Service co-operative societies we have a number of Crown officials, who are paid salaries out of the taxes of the country, spending their surplus time after the short official day in an unfair competition with the ordinary tradesman. These Civil Service organisations at their start took advantage of an act of the Legislature not intended for them, and some of them are now driving what is called "a roaring trade," free of the income tax and other dues that fall upon the shoulders of the general trader, small and large.

When these Civil Service organisations were first put in motion, it was stated that they were established simply for the sole benefit and advantage of the members or

shareholders, and it was supposed for awhile that these stores were solely for the supply of Civil Servants. As time advanced, however, it was found that not only members and Civil Servants could obtain their goods at nearly cost price, but that the members had power to introduce their friends, and their friends other friends. In fact, these Civil Service co-operative stores are now monster establishments dealing in all sorts of goods, eatable and wearable,—indeed they deal in physic as well as food, and music as well as condensed milk and preserved meats, &c.

The ready-money trade which these societies were the means of establishing, and with benefit to their customers, it must be allowed, is a good point in their favour, for under the ordinary system of trading the well-to-do and poor customer alike are unfortunately too often served with adulterated food and drink, and forced to pay an artificial price. It is bad enough to be served with inferior goods, but to be obliged to pay several pence more in the pound or in the yard for the same description of articles that the co-operative stores sell at a small margin of profit, is a very serious matter to the customer. We do not recognise the policy or the right of the ordinary trader or shopkeeper making his good customers pay the debts of his bad ones, which he almost invariably does under the long-credit system. Our sympathies, if there be any practical sympathy needed in the matter, are certainly with the old class of shopkeepers, who have been the backbone of our commercial system. They are to a great extent the supporters of our charitable institutions, the builders of our ecclesiastical edifices, and indeed, for the purposes of local government, our traders and shopkeepers are for the most part the source of our representative system of municipal rule. It therefore concerns our traders, as municipal representatives, and as citizens, merchants, and shopkeepers, that they should collectively and individually give their serious attention to the interests involved in Civil Service trading. It may be difficult to get the Government to do all that is needed in the matter; but one thing there is no escaping from—they cannot refuse to put the conductors of these stores on an equitable basis with the ordinary traders. If this be done—and we are certain it will, and more,—then the ordinary trader and shopkeeper will have an opportunity of reviewing his position, and making a new start in a fairer system of dealing with his customers. Fancy and exorbitant prices must, however, be no longer charged, if the ordinary trader desires to preserve his footing; for what has been done in an unfair way by the Civil Servants may be commenced in a fairly legitimate manner by bodies of workmen and others desiring to obtain good goods at fair and reasonable prices, with a share in the profits in addition.

There is another important point in connection with the dual position now occupied by several government officials and subordinate clerks in different departments of Her Majesty's Service. We are not sure but the Government, by allowing these Civil Service co-operative stores to be conducted in the manner they are, are going far to stultify their own power, influence, and action. In the late inquiry into the administration of the Board of Public Works in Ireland, as our readers may be aware, a case having a direct bearing upon the subject of Civil Servants

holding outside appointments cropped up, and the position of the architect of the Board was smartly commented upon by the Parliamentary Commissioners. They pointed pertinently to the existence of a Treasury minute of the 31st of August, 1846, which we will quote here for the information of our readers and others interested:—

"In order to obtain for the public the full advantage of the services of the commissioners and its officers in their establishment, and to secure general confidence in their proceedings, their lordships consider it to be indispensably necessary that no person on the permanent establishment of the Board of Works, from the commissioners to their most subordinate officers, should be at liberty to accept of any private employment. The commissioners will promulgate this rule to the department, and any person who may not be willing to abide by it must resign his appointment."

Let us ask are clerks and other officers, receiving from £150 to £300 a-year and upwards in the various departments of the State, not entering into private business on their own account by acting as conductors and managers, directors and committee men in connection with Civil Service stores, which are no longer conducted for the sole benefit of the members or shareholders? Some of these Civil Servants draw, beside their dividends as shareholders, bonuses or fees as directors, and payment as committee men for time devoted to work and trading after their short official hours. We are aware that there are dramatic writers and critics, authors of novels and other literary works, who have for years held Government appointments, but their position is somewhat different from traders, buyers, and sellers.

The late Parliamentary Committee *re* the Irish Board of Works say in their report:—

"We are aware that in any circumstances there are strong objections on the part of your lordships [of the Treasury] to members of the Civil Service holding any recognised position with private enterprise; those objections become still stronger when it is conceivable that the interests of the private business with which the servant of the Crown is connected may conflict with his public duties."

The Parliamentary Committee went further by stating that the official, even at a personal sacrifice, be required to withdraw from his outside appointment. We draw attention to the above, and chiefly for the reason that we are desirous of acting fairly by all interests, and to escape from the charge that might be advanced against us that we ignored a case in relation to professional interests, while we took note of others apart from it.

The subject of Civil Service trading in London has for some time back excited considerable interest, and some of the daily papers have published much correspondence on the subject on both sides of the question. The tradesmen and shopkeepers of the city are also preparing to hold a great representative meeting, which is looked forward to with some concern by the conductors of Civil Service co-operative stores. If the Government do not pay a number of its officials and subordinate clerks sufficient salaries to live upon, it may be said that officials are not to be blamed for adding to their small incomes. We have always advocated that fair salaries should be paid to Government employes, and that it is beneath the dignity of any State that its servants should be expected to live upon insufficient salaries. It is a great temptation to jobbery and dabbling in dishonest or speculative gambling transactions for Civil Servants to be employed on miserably low salaries. It certainly does not redound much to the credit of any government that a number



of its employés can answer that they were forced to seek outside employment, and that if they occupy an anomalous position in unfairly competing with the general taxpayer and trader, it is not they, but the Government that are to blame.

If it were possible to supply the wants of London by a dozen or two of monster Civil Service co-operative stores, or the wants of Dublin with half-a-dozen of these huge warehouses, would either city, let us calmly ask, be ultimately benefited? Without hesitation, we answer, it would more likely add to the bankruptcy of the large body of our traders than to the benefit of the city—that is, if these stores were permitted to extend and be carried on, on their present inequitable basis. While we admit that the days of monopolies and exclusive trading can never be revived as they existed formerly under the old conditions of guilds of trade, we at the same time contend that the Civil Service principle of trading, as now conducted, is most unfair and mischievous. If the matter is argued out it must be seen at once that our traders and taxpayers are supporting the Government, and supporting their respective cities and towns—paying, in fact, the salaries of the officials that are permitted to enter the market, and partly ruin their trade by the Government allowing them advantages withheld from the ordinary trader. If a reform is to be carried out and a stop put to unfair trading, there can be little doubt that “the nation of shopkeepers”—as the first Napoleon is credited with designating Englishmen—will succeed to some extent at least in enforcing a new departure in the conduct of these organisations under notice. When the toes or corns of London traders, as a body, are trod upon, it is wonderful with what energy they are heard to call out and unite for common protection. Their interests now are certainly in serious danger, and it is most likely that the weighty influence of the Corporation of London, for the most part a body of large traders, will be exerted indirectly, if not directly, on behalf of their brethren; and as the question is one in which all traders, irrespective of sect or party, can unite, success to some extent may be anticipated.

In addition to the Civil Service co-operative stores we have Civil Service building societies in our midst, some of the features of which are as objectionable as the other co-operative business; but we may allude to these building societies, managed by officials of the crown, more in detail hereafter. The Clergy Co-operative Society is another new venture just started, and it must be pronounced most objectionable if carried out on the same lines as the Civil Service co-operative stores. We see, however, that in some towns in the sister kingdom already the clergy have acted wisely by declining to join it. In Wrexham, a few days since, the Deanery Church Association passed a resolution that it is inexpedient “that the clergy should assist in the establishment of the new Clergy Co-operative Society—not because it is in contravention of the acts regulating clergy discipline, but because it would injure local trade and alienate from the church the support of the tradespeople and parishioners.” The Wrexham clergy are wise, for if this clergy co-operative organised trading is carried out, bishops, rectors, and curates may bid farewell to funds for “restorations” and church buildings, &c.

Apart from all we have written, we are still advocates for the co-operative principle on fair grounds. Many industries can be worked by a federation of workmen, by subscribing whatever capital they can raise, and working together as one man. Factory hands could unite, and have long since united, in some towns to establish mills and factories, and have worked them with profit to themselves and to the general community. Colliers, combined, could work coal mines, and general miners and quarrymen iron and stone and other minerals. There are many trades and industries which skilled labour organised in its own behalf could advantageously work without hurt to the general community, and we would like to see co-operation for these purposes. Artists and literary men could also often usefully and profitably co-operate for their own profit and welfare, but the lines they could move upon present none of the objections that can be urged against the system as carried out by Civil Service co-operative organisation.

As the subject we have discussed above is a wide one and admits of a fuller treatment than what we have given it, we must postpone the consideration of other bearings on it until another opportunity presents itself. If the question ripens by public discussion in the meantime, we may think it desirable to return to it in our next or succeeding issue.

#### WORKMEN AND THEIR EARNINGS.

For several months back there has been a considerable depression in various branches of industry, and distress is very severe in some English manufacturing districts. While scarcity of employment has been evident of late, as yet there is no large amount of pauperism among the industrial classes, or that portion which have been always willing to work, and to shrink from applying for relief. We think it is evident that the industrious among the working classes, skilled and unskilled, have for some years back cultivated the habit of saving, though not to the extent that they should. There is certainly an increase in the savings banks' deposits and also in some items of the Revenue, which go to prove that the purchasing power of the people not only in respect of food, clothes, and better homes, but also as regards luxuries, is still strong; and if it has not increased within the last year or two, it has not been much impaired.

Mr. M. T. Bass and Professor Leone Levi, both of whom have more than once interested themselves in collecting and furnishing statistics to the public in England concerning the condition of the working classes, have again a few days since acted in concert. Mr. Bass was desirous of finding out as nearly as possible the present earnings of the working classes, and for this purpose he applied to Professor Levi, who had in 1866 similarly aided Mr. Bass in his quest. We will summarise some of the results. If the inhabitants of the United Kingdom are put down at 34,000,000, two-thirds of the number, or 22,000,000, may be said to belong to the working classes. How many of these earn wages, and what is the amount of their earnings? The census return of 1871 must be referred to, making some allowance for the increase of the population. Engaged in the various industries there are, say—Men under twenty years of age, 1,511,000; of twenty and upwards, 6,310,000; women under twenty,

1,219,000; and of twenty and upwards, 2,469,000. This gives a total of 11,509,000 wage-earners out of a labouring class of 22,000,000. Now, what wages do those workers obtain?—and let it be remembered that up till a few months ago there has been a steady increase in the several branches of skilled labour. Professor Levi furnishes a list of the rates of different trades in England, but in many trades the piece-work system obtains, and workmen earn more wages than if paid by the hour or week system. The annexed list will be found useful, and may be taken as fairly correct as to the rate of wages or what was obtainable within the last year or two:—

Seamen—65s. to 90s. per month, plus food and berth. Printers—Actual earnings in a leading house for the year 1877–8: Compositors, £103; readers, £138; pressmen, £84. Lithographers—Artists, £3 to £4 per week; writers, £3 to £4; journeymen printers, £2 to £4. Bookbinders—Time-workers, 32s. to 40s. per week; piece-workers, 38s. to 76s. Philosophical instrument makers—7d. to 9d. per hour; when on piece-work, £3 3s. per week. Machine makers—Fitters, 38s.; planers, 38s.; smiths, 36s. to 42s.; riveters, 33s.; platers, 42s.; turners, 32s. to 35s.; patternmakers, 34s. to 38s.; planers and bolters, 18s. to 28s. Carriages—Body-makers, 38s. to 40s.; carriage-makers, 36s. to 38s.; wheelers, 32s. to 34s.; trimmers, 34s. to 40s. Builders (London)—Carpenters, masons, bricklayers, and joiners, 9d. an hour for 5½ hours, or 39s. 4½d.; plumbers, 39s. 2d.; labourers, 6d. an hour, or 26s. 3d. Cabinet-makers—Average hands, 38s.; best hands, 45s., chair-makers, average 35s., best 40s.; mattress-makers, 30s. and 40s.; French polishers, 28s. and 33s.; carvers, 34s. Cotton manufacture—Winders, 27s. 6d. to 32s.; piecers, 25s.; cardroom women, 10s. 6d. to 12s.; men, 21s. 8d. to 22s. 6d. Jute manufacture (Dundee)—Preparing women, 8s. to 9s. 6d.; spinners, 8s. 6d. to 11s.; reelers, 9s. to 11s. 6d. Boots and shoes (Stafford)—Clickers, 25s. to 30s.; fitters, 21s. to 28s.; machinists, women, 10s. to 18s.; girls, 10s. to 12s. Bakers—Foremen, 30s.; second hands, 26s., plus bread and lodging. Sugar refining—General hands, 4s. 3d. to 4s. 10d.; panmen, 6s. 8d. to 8s. 2d.; figuremen, 5s. to 5s. 10d.; (piecework), wet clear, 7s. 1d. to 7s. 2d.; dry clear, 6s. 1d. Brewers—Racking-room, 20s.; hopping, 20s.; grainers, 21s.; labourers, 18s. Gold and silver chasers—First-class, £4 to £5; ordinary, £2 to £3. Silversmiths—First-class, £2 10s. to £3; ordinary, 38s. to 42s. Mining and agricultural wages vary considerably, 13s. to 20s. Ironworkers—Roller firemen, 30s. to 50s.; assistants, 20s. to 30s.; hot-bar drawers, 12s. 6d. to 25s.; puddle-bar weighers, 24s. to 30s.; furnacemen, 35s. to 50s.

Some people are of opinion that the above is a good average, and rather under than over estimated. The gross earnings in these trades at present rate of pay, and under an average amount of employment is, according to Professor Levi—men under twenty years of age earn per year £32,000,000, the women £29,000,000, or say the youth of both sexes earn per year £61,000,000. The above earnings, of course, have a bearing on the estimate, not of the individual, but family or household income of the ordinary workman, though the youth of both sexes, it must be admitted, do not always live with their parents. The men above twenty years of age £358,000,000, the women £84,000,000, giving a total of adult earnings of £442,000,000; together, men and women of all ages, of about £503,000,000. From the above total, however, deductions must be made, and Professor Levi deducts 7½ per cent. on account of senile labour, or that performed by men above sixty years of age, for those men are only nominal workers in the majority of cases. Again 2½ per cent. is deducted for masters not distinguished in the census from workmen, so the total earnings of the working class are, at the present rate of wages, reduced to £452,700,000. It will occur now to the reader perhaps that a reduction must also



be made in consequence of the present depression of trade, but as all trades are not alike depressed, the limits may very nearly be defined. The textile and mining industries are principally depressed, and a large number of labourers of a varied kind who cannot be well classified, but whose industries are always more or less affected when employment is slack. Next we have a computation as to the average earnings in these industries and the proportion it bears to the £452,000,000 of wages which each year passes into the hands of the 11,509,000 wage-earners in the kingdom. The textile industries give 2,300,000 persons, who yearly earn £90,000,000, the mining industries 625,000, who earn £26,000,000 a-year; the metal manufactures support 628,000 hands, earning £41,000,000; and of the indefinite class of labouring hands, who always suffer in dull time, it is estimated there are 686,000, who earn £25,000,000. We have now a total of workers affected by bad trade, in number 4,239,000—a small portion, it may be said, of the 11,509,000 wage-earners in Britain, and their earnings are but £128,000; and this may be said to be not an overwhelmingly large portion of the £452,700,000 annually made by the 11,509,000 wage-earning men and women and boys and girls in the country. We have a further supposition in which an allowance must be made in consequence of depressed industries, that a sixth of the yearly income made by those who work at them is lost owing to depression of trade, and this would entail a deduction from the £452,700,000 of total earnings, the sum of £30,000,000. After these deductions a sum is left of £422,700,000 to represent the yearly earnings of the 11,509,000 wage-workers in the kingdom—an income, say, of upwards of £3 a month per head. The result of the above calculations brings the earnings at present of the working classes to a sum nearly equal to those obtainable in 1866. If the labouring classes truly number 22,000,000, and if that number be divided into families all round of five each, there would then be 4,400,000 families to share in the certainly enormous sum of £442,700,000 earned each year in wages. If no deduction be made on the score of depressed industries, then according to Professor Levi's figures each one of the above families would have £94 a-year to live on, and allowing for depressed trade £88 a year; or to put it in another way each family has now only 33s. per week, instead of 36s. as previously to live upon.

The above calculations are suggestive, and though they may not be unerring they may help us in approximating pretty closely to the present condition of the working classes. Pauperism or extreme want, however, may exist in many directions, before it manifests itself in connection with indoor or outdoor relief rations in connection with our work-houses. If depression continues to exist for some months longer, pauperism is certain to manifest itself to a large extent. Many persons out of employment now may be living upon their past savings, and we are certain that is the case with several out of employment. Want of employment leads to the withdrawing of savings from banks or from institutions. Workmen often receive aid from their friendly and trade societies, and when societies and friends have yielded all they can, their household effects are parted with before out-door relief is applied for from the guardians. The present depression in

trade may not, however, be of very long duration, and perhaps with the ensuing spring and summer trade will again revive, and the worst will have been passed over. We fear that some trade strikes in the sister kingdom are ill-advised at present, for wages are certain to fall when there are too many hands out of employment. But while we condemn ill-considered strikes and lock-outs as well, we think that there are some large employers and companies, and particularly railway companies, who are not justified in putting pressure on their employes, and reducing wages at present low enough and barely sufficient to support their workmen and families. This reduction has been attempted and enforced in some instances by directors, and not called for by a falling off of receipts. If undue advantage is taken now of the depression of trade to reduce the wages of workmen, employers and railway companies may find that their tactics will be adopted by their workmen, when trade grows brisk again. There should be no antagonism between capital and labour, for each is mutually depending on one another. If friendly relations were more often cultivated between employers and workmen, there would be concessions on either side in many instances when the state of the labour market necessitated it. In the face of the present trade depression, we trust that the Government, if it should be necessary to appeal to them, will do their duty by the people, and that our poor law bodies in the interests of the very poor will act with judgment in the administration of relief.

#### THE "PITCH'D" BATTLE AT ST. ALBAN'S.

THE battle of the "pitches," high and low, in reference to the nave roof of St. Alban's has been fought further since our last issue. Mr. Arthur W. Blomfield, architect, and Sir Edmund Beckett, amateur (though architectural and scientific essayist) have been pitching in antagonistically to each other. The baronet and parliamentary lawyer, however, makes a thrust at others besides his opponent. We think the *Times* has of late acted most unfairly towards architects and the architectural profession, and whether it was moved by the spirit that found vent some time since in the *Quarterly Review* is a matter of conjecture and suspicion. Sir Edmund Beckett has written some useful works, and his "Book on Building," though it has its faults, is a useful compilation. He is an honorary associate of the Royal Institute of British Architects; and while he is justified in denouncing abuses wherever he finds them, we think, at the same time, it would be more honourable and dignified on his part to have left unsaid some of the unjust remarks he has given expression to. Suspicion is not reality, and his belief of a thing does not constitute it a fact. Assertions may often and do often lead to wrong; and a man's position, no matter how elevated, does not justify him in making strong assertions if they cannot be proven. We can understand the drift of recent insinuations against the architectural profession, but for the life of us we cannot see the necessity of harping on strings already broken, if further wholesome exposure cannot be made for the good of the community.

Mr. J. O. Scott has replied to Mr. Street's letter alluded to in our last, and the latter

has rejoined. Mr. W. White, of the Institute, has also contributed a practical and excellent letter to the controversy in reference to the nave roof.

There ought to be no difficulty with architects of establishing a friendly concord, although this high and low pitched battle is a combination of flats and sharps. We may generate an ellipse from a circle, and construct a lancet or Gothic pitch within a given circle, or outside of it, or in combination. Let harmony be "restored" within the architectural circle, and let other high-flyers and outsiders take their new departure if they like, in striking a tangent with the moon.

#### THE COLLECTOR-GENERAL'S REFORMS.

THROUGH oversight, and partly through pressure of other matter, we omitted to take notice of the very useful and practical report issued at the close of the last year from the Collector-General's office. The document in question is a series of brief but suggestive reports by the "Inspector of Premises," holding office under the Collector-General. We have first a list of the premises in the different wards which were returned by the collectors as insolvent, but on inspection now reported as recoverable; and, secondly, we have another list of premises returned as insolvent, and now confirmed by the inspector as insolvent. Certainly these reports are highly creditable to the Collector-General's department, and go to prove the bad management that must have previously existed. When so many house owners or occupiers responsible in former years have been allowed to escape the payment of rates, no wonder the ratepayers who always honestly paid their assessments were heavily burdened, and in the face of these reports they have and had just grounds for protest. Several house owners have for years evidently been playing at "hide-and-go-seek," but though they kept betimes out of the way, and acted through agents that professed to know nothing, yet they were fully alive to their rights and the necessity of screwing out rents from their tenants or sub-tenants. Several tenants, too, or squatters, have enjoyed long years of ease, without any rent or rate paying. The Collector-General is to be commended for initiating the reform, and the inspector also for the activity he has displayed in prosecuting his numerous inquiries, and performing oftentimes very difficult duties. A considerable amount of money has already been recovered, and a large amount is still in process of recovery. The results of the Collector-General's action will be more apparent hereafter as tending to the benefit of the city.

#### PEELE'S COFFEE HOUSE, LONDON.

It is worth notice that Peele's Coffee-house, formerly one of the noted literary haunts of the neighbourhood of Fleet-street, has disappeared, having recently been absorbed into the contiguous hotel of the same name. It had of late years languished as a public news-rooms, and the *coup de grace* was given to it when a young and vigorous institution of the same kind was opened as the City News Rooms, near Ludgate Circus. The decline of Peele's was due to the same cause as its reputation for the past half-century. It was the only convenient place where journalists could consult files of the provincial and metropolitan papers; but these stores of the past had encroached on the available space of the establishment to such an extent that there was not room enough left for the customers,—at least, not sufficient to make the concern a paying one. Amongst the treasures for which Peele's was noted was a perfect copy of the *Times* and of the deceased *Morning Chronicle*, both from the date of their first appearance. When it was determined to close the place, these were offered



at the price of waste paper to the British Museum, but were declined. Advertisements in the United States and some of the colonies likewise failed to bring purchasers, and the proprietor was compelled to dispose of the whole of his files to a waste-paper merchant of the Borough. The *Times*, *Morning Chronicle*, and other files which were sold, weighed no less than 40 tons, and realised the sum of £200 as waste. They have long since passed through the mill again, and appeared once more in a newspaper form, but under other names.—*Builder*.

#### IMPROVED REVOLVING SHUTTERS.

WE have much pleasure in directing attention to the improvements lately introduced in the matter of shutters by Messrs. Salmon, Barnes and Co., of Ulverston, Lancashire. Whether of iron, steel, or wood they will be found simple in their mechanism, whilst their durability can be guaranteed. Of the latter material Messrs. S. B. and Co.'s shutters have just been placed at the outfitting establishment of Messrs. Callaghan and Co., 9 and 10 North Earl-street in this city. These premises have been enlarged and remodelled, under the direction of Mr. G. P. Beater, architect, by Mr. J. Moloney. Here it was that, whilst the employes were engaged in the operation of fixing, we had a fine opportunity of practically testing what main advantages these shutters had over those supplied by other firms. We were fortunate in meeting on the spot the worthy agent in Dublin of Messrs. Salmon, Barnes and Co.—Mr. C. J. Allen, who clearly explained every minutiae. We notice also that a restored "Gin Palace" in Gt. Britain-street will be closed in with the "patent revolvers." These shutters require no machinery; they are equally balanced whilst in any position with chains of peculiar make attached to weights. The roller does not work in a fixed centre, but by a backward and forward motion given to it as the shutters pass up and down. The band and weights can be carried to any distance behind the shutter shaft on a series of pulleys—this will be found an important feature. Messrs. Salmon, Barnes and Co.'s illustrated catalogue (a copy of which lies by us) gives full particulars, with diagrams, prices, &c. Their testimonial list is a long one already, and will no doubt be daily receiving additions. At the recent Paris Exhibition this firm received the highest award in Class 66 for iron and wood revolving shutters worked by patent balance-weight motion. [See their advertisement on last page of this issue.]

#### THE PROPOSED WORKMAN'S CLUB IN DUBLIN.

ANOTHER meeting was held on the 11th inst., in continuation of a preceding one, upwards of a month since, for the purpose of taking steps to establish a Workman's Club in Dublin. The Lord Mayor presided, and other members of the Town Council, as well as some professional men and traders, were present. It would be useless on our part to publish the proceedings in detail, as some of the statements made were not very edifying. The artisans and working men of the city have not shown any great disposition as a body to support the movement commenced at first with greater enthusiasm than was manifested at the last meeting. We fear that more than one cause has contributed to throw cold water on the movement, and some of these may be found in the proposed rules. We are decidedly of opinion that the club would not be a true workman's club, if carried out subject to the organisation proposed. There were rival

interests at work too, we fear, and some of the professed friends of the movement at first, on their second appearance were wonderfully perplexed and undecided. A few more supposed friends of the working man put in no appearance at all. Some members of the "Mechanics' Institute" held that the workmen of Dublin who have failed to support that body would also fail to support the club, if established. Members of the trade societies, or some of them, had a suspicion that the club would injure their old trade organisations, for reasons perhaps best known to the speakers—though workmen's clubs in England do not clash with trade societies, or injure them in any way. The selling of liquor in the club no doubt awoke the tender susceptibilities of the vintners of Dublin; and publicans, as a body, are not supporters of free libraries or workmen's clubs. Publicans, too, have a habit of remembering the members of Parliament, the town councillors, and others who injure their trade interests, directly or indirectly, and they know for whom to vote at general and municipal elections. Perhaps for the above among other reasons it may be seen by those who care to know it, why the project of a Workman's Club has all but fallen through in Dublin. If workmen are in earnest in our city, and really desire the formation of clubs, they should organise and manage these bodies themselves, and practical sympathy and interest in their success would be soon forthcoming from a number of outsiders.

#### RE SITES FOR ARTISANS' DWELLINGS.

##### AN IMPORTANT DECISION.

A QUESTION was argued a few days since in one of the Bankruptcy Courts before Mr. Posnett, arbitrator, and Mr. Hugh Law, Q.C., M.P., legal assessor. The issue raised was, whether persons whose properties had been compulsorily purchased, or whose trade had been disturbed in order to afford sites for improved artisans' dwellings, were entitled to compensation.

Mr. Monroe, Q.C., appeared for Mr. Dowling, a dairy proprietor living in the Coombe, and for other claimants, and submitted that compensation should be awarded for compulsory purchase and loss of trade profits. Counsel referred to the provisions of the Act, which enables the municipal authority, upon an official representation that streets, lanes, or alleys, in a particular area are unfit for human habitation or are unhealthy, and that disease is prevalent within it, to take steps to have an inquiry upon the point, and, after the inquiry has established the fact that the area is unhealthy, to, by means of a provisional order, have the area cleared. The area to be cleared was the unhealthy area officially reported in this matter. The sanitary officer, Dr. Mapother, in his report declared Elbow-lane and Pimlico to be unhealthy, but he did not so report of the Coombe, where Mr. Dowling's dairy-yard was situate. The Coombe, therefore, was not condemned in the "official representation," neither was it condemned by the subsequent resolution of the Municipal Council. Therefore property in the Coombe, where the question arose, should be dealt with precisely as if the premises were taken for railway purposes. Under the Artisans' Dwellings Act no doubt the fair market value only of the property was to be given, but it was also provided that all the circumstances affecting the value of the property were to be considered. Now, the fact that premises were used for trade purposes was clearly a circumstance affecting the value, and he urged should be so considered in the award. It would be hard indeed that where a man had trade premises which were perfectly healthy, in which all proper sanitary regulations were carried out, merely because these premises adjoined other premises that were unhealthy, the owner was to be forced out of them, his trade destroyed, and his prospects ruined, he receiving no compensation beyond the mere market value

of the premises as premises morely. That surely could not be the construction of the statute.

Mr. Andrews, Q.C., on the part of the Corporation, said the question raised was an important one, and decision would considerably affect the rates. It was the area reported to be unhealthy that was dealt with by the municipal authority, and within the area reported to be unhealthy, condemned as such, and comprehended within the improvement scheme was the Coombe, in which the claimant's premises were. Therefore the case had to be dealt with as one of voluntary sale and voluntary purchase. No doubt all the circumstances affecting the value were to be considered, and he admitted they were to be considered to the extent of the condition of particular premises for a particular purpose. For instance, in Mr. Dowling's case, the fact that his dairy yard was well fitted up and appointed might be considered as increasing its value beyond what it would be if the dairy yard did not give accommodation or was in bad condition. But that was entirely different from paying for the goodwill of the business or for supposed loss by removal, and he submitted that no such allowance could be made, and that a ruling otherwise would be entirely outside the scope and intent of the statute, which was passed for a public purpose—to improve the public health and remove causes of disease and impaired health.

Mr. Bewley followed on the same side.

Mr. Monroe replied.

Mr. Perrin, Mr. M'Dermott, and Mr. Falconer supported the contention of Mr. Monroe. The amount asked to be added on for the compulsory purchase was 10 per cent. on the market value.

The arguments having closed,

Mr. Law, Q.C., said he would advise the arbitrator to allow the full, fair market value of the premises, inclining, where there was a doubt, to the side of the claimant, but to allow nothing for either compulsory purchase or loss of goodwill or trade profits. The fact, however, that a business was carried on in the premises might be taken into account in estimating the market value, but not the supposed value of the goodwill, which the party might carry away with him wherever he went.

#### KINGSTOWN COMMISSIONERS' REPORT.

THE following is a portion of the annual report of the township board, read at yesterday's meeting:—

"The provisions of the Public Health Acts, 1874 and 1878, and of the Sale of Food and Drugs Act, 1875, continue to be carried out, the following being a brief summary of the business transacted during the past year:—3,797 houses and yards were inspected; 606 persons were served with notices to make sanitary improvements; 524 nuisances were abated by service of notices; 63 nuisances are pending abatement by magistrates' orders; 105 persons were summoned to abate nuisances. To ensure as perfect sanitary supervision as possible, the additional sub-sanitary officer (a sergeant of the Dublin Police), appointed September, 1876, has been continued in office. A large quantity of road metal, consisting of Bray Head stone, ordinary limestone, tailings, gravel, and sand, has been used upon the roads, sufficient to maintain them in good order. During the past year the extensive system of internal drainage previously commenced has been carried on unremittingly, and now approaches completion. Negotiations are pending for the construction of the great outfall sewer for a distance of over 3,000 feet along the slope of the Western Pier, for the purpose of conveying the sewage of all the western part of the township, and of an extensive district of the adjacent township of Blackrock, the commissioners of which will contribute a portion of the expense. A modification of the plans for this work, recommended by several eminent engineers so long ago as 1867, has, with the approval of the Board of Works, been adopted; and a tender for the execution of this plan, for a sum of £14,100, has been received by the commissioners. The contract with Messrs. Meade and Son for building the new Town Hall and Courthouse was proceeded with, and the foundation-stone was formally laid November 20th. It is expected that the building will be completed in about twelve months from this date."



## EXCAVATIONS AT ILIUM.\*

(Concluded from page 6.)

THE part of all these treasures which, in the division with the Turkish Government, has fallen to my share shall at once be exhibited in the South Kensington Museum, together with a dagger of meteoric steel, an instrument of ivory, in form of a hog, probably used in weaving, and a flat statuette of lead, all of which objects I only obtained by weighing them up against Trojan gold beads. The dagger is the first iron I have ever found in any prehistoric city; it is double-edged, and has perfectly the form of the Trojan bronze daggers in the South Kensington Museum; but it is only 4 in. long. It has not the slightest rust or corrosion, and its preservation is a remarkable instance of the antiseptic power of the red wood ashes mixed with charcoal, in which it was imbedded in the royal mansion, at a depth of 28 ft. below the surface; it is almost as white as silver, and still very sharp, though covered by the *patina* of ages; near its lower end are two openings, 0.53 in. long and 0.12 broad. The leaden statuette is 2.6 in. long, and has altogether an Egyptian type; the hair is well indicated on the forehead as well as by the braids which hang down on both sides; the breasts and the navel are marked by small circles, and the *pudendum* is indicated by a triangle 0.31 in. long and nearly as broad. Though the knees are marked, yet the legs are not separated, and the lower part of the body resembles an Egyptian mummy in its wrapping. This figure was found at a depth of 23 ft., and it is wonderful how it can have escaped the conflagration.

The Phallus appears to have been worshipped at Troy, for it is often found here of marble or other stone; it had from the remotest antiquity, as the representation of the creating and generating principle, a cultus with the Pelasgians, from whom the Athenians learned to make the ithyphallic *Hermæ* (see Gerhard "De Religione Hermarum," p. 3). The Phallus was worshipped at Lampsacus and on the neighbouring islands of Imbros and Lesbos (Herodotus, v. 26, vi. 137; O. Muller, "Etrusker"), also at Aletri and Terni, on the cyclopean circuit walls of which it is represented. Nay, on the sepulchre of Alyattes of Lydia stood a gigantic Phallus, of which the head, still extant, measures 40 ft. in circumference and 12 ft. in diameter (O. Muller, "Arch. d. Kunst"); the Phallus was also a sepulchral symbol in Etruria.

Of the usual Trojan idols a vast number was found, and as all of them have perfectly the same shape, there can be no doubt that these are exact copies of the primitive Palladium, which was fabled to have fallen from heaven with a lance in one hand and in the other a distaff; this latter shows Pallas Athené's character as Athené Ergane, or tutelary deity of the working, and particularly of the weaving, women, and explains the presence of the many thousands of whorls with incised religious symbols, which have never been used and can be nothing else than votive offerings made by the Trojan women to their patron goddess. I further believe that the Phrygian Ate, on whose sacred hill Ilus built Ilium (see Apollodorus, iii. 2-3), is identical with Athené; at all events, that Ate can have nothing in common with the Homeric Ate, which latter is nothing else than the personified power of delusion and infatuation (see Iliad, xix. 91), and can of course never have had a temple or a cultus. More difficult than anything else I find to explain the presence of the immense number of small single or double-edged saws of silex, 1 to 3 in. long, which cannot possibly have ever been used for cutting wood or even bread, for, instead of furthering the cutting, the indentation would impede it; they can neither have been used in the harrows, as, for the most part, they are too thin and fragile for that purpose. Very frequent are also knives of silex or obsidian, which latter may have been used as razors; razors were

known to Homer (see Il. x. 173). In great abundance are also found here balls of terracotta, most of which have representations of the starry heavens; on one of these are engraved two signs, which, turned one way, represent a Latin 6, and, turned the other way, an Arabic 18. As we see the same signs on a seal published in my "Troy and its Remains," they may probably be written characters. I also found some whorls with written characters. I may here also mention a copper or bronze coin, found in the Trojan stratum of red or yellow ashes, at a depth of 26 ft. below the surface; it has on one side a deep, nearly quadrangular stamp, in which is a sign resembling a croce ansata or svastica; on the reverse side is merely a protruding dot. Of other interesting objects I may mention a stick, perhaps a sceptre knob, of glass with an ornament in form of a serpent, and two perforations by which it was fixed on the wood. This is the first glass I ever found here, except the Trojan vitrified floors, which are, no doubt, one of the greatest curiosities here. On entering from the north side the great trench in my excavations, visitors will see, to the left, parts of five or more chambers of a Trojan house, whose floors are partly stretched on large flags, and in this case they have perfectly the appearance, and I might even say the solidity, of asphalt floors, or they are stretched on a layer of ashes and *debris*, and in this case they are invariably vitrified and form a porous mass with a lustrous, green, glassy surface; in the former case they are on an average 0.35, in the latter 0.40 to 0.60 in. thick. All the floors of the upper storeys, and even the terraces on the top of the houses, consisted of wood, but were covered with a similar asphalt-like mass, which seems to have been entirely liquefied in the great catastrophe by the burning of the wooden floors, and to have run down; in fact, only in this manner can we explain the presence of the enormous mass of vitrified lumps in the ruins, which are either shapeless or of a conic form, and often 5 to 6 in. thick. Samples of the asphalt-like and the vitrified floors I sent to the celebrated chemist, Dr. John Percy, in London, begging him to report on them in the *Times*. Dr. Edward Moss, of Arctic celebrity, now on board H.M.S. Research, in Besica Bay, maintains that those vitrified floors have been produced by the action of intense heat on the surface of the underlying clay, the straw in the latter supplying the silica for the formation of an alumina-glass. He informs me further that he exposed to a white heat a fragment of this clay, and even some of the fragments of Trojan pottery, and that they vitrified at the corners.

What I have brought to light of the Trojan houses in general, and of the last town-chief's or king's mansion in particular, are merely the substructions, on an average 5 ft. high, which in the absence of cellars served as store-rooms. A similar habit of using the ground floor as store-rooms appears to have existed at the time of the poet, for we see in the Iliad (vi. 288-9) that Hecuba descends to the store-room where the artfully embroidered garments were stored. Had the store-room been on the floor inhabited by the family, the poet would not have said that the queen descended. The substructions of the royal house consist of uncut stones joined with clay; the inner side of the house-walls has a thick coating of clay which has been white-washed with clay. If asked, "Is this Priam's palace, as described by Homer?" (Il. vi. 242-49) I would answer by the verse of Virgil, "Si parva licet componere magnis." In fact, according to the poet, the palace contained fifty chambers for the king's sons and twelve for his daughters, and all were of polished stone. But Homer can never have seen the Troy whose tragic fate he describes, because at his time, and probably ages before his time, the city he glorifies was buried beneath mountains of *debris*. But at his time public edifices, and probably also royal mansions, were built of polished stones, and he therefore attributes the same architecture

to Priam's mansion, magnifying it with poetic licence. This building has towards the gate a corridor 40 ft. 8 in. long by 6 ft. broad, leading to a chamber only 7 ft. 6 in. long by 4 ft. 6 in. broad, in which the ingenious Dr. Moss discovered a gutter of hemispherical form; this room is nearly filled up by a huge jar 5 ft. 6 in. high and 4 ft. 7 in. broad. By a door only 1 ft. 10 in. broad this chamber communicates with another larger one, which is 12 ft. 3½ in. long and 7 ft. 4 in. broad, and contains three immense jars, of precisely the same size as that just referred to, and a somewhat smaller one; the pottery of the jars is upwards of 2 in. thick. From this room we enter, by a door 3 ft. 2 in. broad, into a larger one, which runs parallel with the aforesaid corridor, and is 24 ft. 4 in. long and 12 ft. broad, and leads to another chamber 10 ft. long and 8 ft. broad. This is the best preserved part of the mansion, to which belong also the buildings which separate it from the northern part of the great wall. I therefore do not see any reason why the mansion, if, as is highly probable, it had five or six upper storeys of sun-dried bricks or wood, may not have had even more than a hundred smaller or larger rooms. I secured one of the bricks, which is 2 ft. long, 1 ft. 3 in. broad, and 3¼ in. thick, and which has in the conflagration been converted into burned brick.

In several directions beneath the royal mansion we see the walls of a still much more ancient building, which we cannot but ascribe to the first city erected on these sacred premises, because all the fragments of pottery which we find in the very chambers of the ancient mansion, immediately below the Trojan stratum, have on both sides that beautiful lustrous red, black, or brown colour, which I never yet found elsewhere but in the strata of the first city. I now feel even bold enough to say that the great circuit wall was not built by the Trojans, but by their predecessors, because in carefully digging off the *debris* from that wall I find it covered by a layer of rubbish about one foot thick, which is not Trojan, because it does not contain any burned matter, and because it is full of pottery peculiar to the first city, which cannot possibly be there by mere accident. Above this layer the great wall is covered six and seven feet deep with brick-coloured ashes of the tower-like buildings of sun-dried bricks and wood, which once served both as its ornament and as its works of defence, and Dr. Moss calls to my remembrance that in this respect Troy resembles several cities in Scripture; so e.g. Joshua (ii. 15) describes the house of Rahab, situated on the circuit wall of Jericho. I have equally acquired the certainty that the gate, which has now turned out to be treble, was built by the inhabitants of the first city of large, rudely-cut white stones, which we see in all the lower layers of the gate-walls, and the passage was paved by them with white flags. The succeeding people, whom I identify with the Trojans, had merely repaired the gate, covering the white flags with others of a reddish colour, and heightening the side-walls of large white slabs by a masonry of small stones. The reddish flags, having suffered too much by the white heat in the conflagration, have nearly all crumbled away since I brought them to light. Of the white flags I lifted one, and having dug beneath it a large square hole, 3 ft. deep, I only found there potsherds belonging to the first city. The third gate is 17½ ft. broad, and beyond it the masonry continues still for 10 ft. on either side. Of course the three gates, as we now see them, are merely the substructions of a tower-like building of sun-dried bricks and wood.

One of the most curious objects ever found here is undoubtedly a distaff 11 in. long, around which is lengthwise wound a large quantity of woollen thread, black like coal, probably from being charred; but I trust that, locked up in a glass vessel, it will keep very well. I discovered it in the royal mansion at a depth of 28 ft. below the surface. According to Dr. Moss, the wood of the distaff is the stem of a very young tree.

\* By Dr. Schliemann, in *Athenæum*.



Visitors see in the *talus* of my trenches billions of cockles and muscels, which are not found here on the sea-shore, but only in the deep inlets which communicate with the sea; of course they must have been used as food by the inhabitants. In the Trojan stratum, in which all the kitchen middens are charred, Dr. Moss recognizes razor-shells, limpets, pectens, and oysters, mixed with sea-sand, hare- and pig- as well as small fish-bones, flint-chips, boar-tusks, and stag-horns. He observes that the latter are nearly all cast antlers, with the burr much worn, which implies that they were probably collected to make implements, and not merely brought to the town with the products of the chase. He also found in the Trojan layer of *debris* an ulna of a boar with a flint flake upon it. Visitors will see that the well which has been dug by the later Greek Ilians is, at a depth of 28 ft. below the surface of the hill, pierced through one of the walls of the Trojan town-chief's mansion, and it appears indeed extraordinary that, according to Strabo, they should have shown in their own city—and, of course on a level with their other buildings—a fantastic Prytaneion of Hector and a fantastic mansion of Paris; further, that they should have preserved in their temple of Athené fantastic Trojan weapons, without ever thinking that the real Trojan buildings and weapons lay buried 28 ft. deep beneath their feet.

In conclusion, I here publicly most warmly thank my honourable friend, Sir A. Layard, the illustrious English Ambassador at Constantinople, for the powerful assistance he has lent me, and all the kindness he has shown me during the time of my excavations at Troy. Solely to him am I indebted for my firman and for my successful excavations, in the progress of which there arose at every moment difficulties which would have put an end to the work had it not been for his friendly protection, which I have continually had occasion to invoke, and sometimes even twice a-day, per telegraph.

#### RESTORATION OF ANCIENT BUILDINGS.\*

I HAVE written so much on the subject of "Restoration" during the last ten years that the call of Mr. Caine, the president of this society, for a contribution to its proceedings put me in a difficulty for something fresh to say on it.

While I freely yield to Mr. Ruskin the honour of being the first to denounce the principle and practice of "Restorations," which he did with all the eloquence for which he is famed, it is due to myself to say that I have done more to expose them, to meet all arguments in their favour; and more fully answered the oft-repeated question, "What are we to do with these old fabrics when they become unfit for use?" than any other writer. I was first led to the subject by my feeling of disgust at what I had witnessed around me and near me. I had seen some of the noblest cathedrals in England, each the crown of glory of its city, the tower of which caught the last smile of departing day, completely denuded of all interest, and I well remembered my sensations at the "restoration" of St. John's Church, Chester, as early as 1861, when I felt daily that virtue was going out of it, and that its "restoration" was its destruction. These are what led me to the subject, and to say, in a paper on "The Growth of Liverpool," read to the Architectural Society in April, 1868, and printed in its Transactions,—“There is talk of ‘restoring’ the cathedral [Chester], which, to the ear of an artist, as it will probably involve the entire recasing of the building, simply means *destroying*: destroying its antiquarian and historic interest and picturesque beauty.”

Since this I have so fully shown up the evil that I now feel I could better serve the cause of protection by republishing what I have already written, which would fill a

thickish octavo volume, than by writing any more. A letter from Mr. James Bromley, informing me that certain *literati* had expressed their determination to be down upon "the mawkish sentimentalism" of the objectors to restorations, suggested the course I have taken in the following remarks:—"Restoration" means the taking a building back to what it was in its prime of youth and beauty, by which, of course, history is falsified, its (the building's) teachings to the architect and archæologist for ever silenced, and the harmonising effects of time and the associations of history and legend destroyed. I leave to others the archæological grounds of objection to "restorations," and confine myself to the consideration of the æsthetical and poetic.

A new building is interesting and valuable, like a new poem, statue, or picture. But unlike these works, which never really increase in beauty, the building is no sooner finished by man than nature takes it in hand, lavishes on it her own infinite system of beauty, and gives it finishing touches beyond the reach of art; which assimilates it to all around, and marks it for her own. The beauty of an ancient edifice is beauty upon beauty, nature having worked on a ground prepared by art. The building originally, perchance, was a noble piece of harmonious architecture; the ages have breathed on it, and now every one of its stones has become a picture, a poem, a history. The building added to nature, and nature has requited the benefit a hundredfold, and ennobled the building, which henceforth has something divine about it: it is architecture glorified, sublimated, idealised. The higher class of ancient buildings, I say it advisedly, are gems of the brightest landscapes—the high-water marks of material beauty on the face of the earth, over the loveliest portions of which they shed fresh glory, and give to flower, and grass, and stream a new and diviner birth.

They differ from new buildings also in having a virtue seen only by the eye of the imagination, viz., the memories of the past with which they are pregnant. The mind descends on them the lights and shadows of history, which give them an ineffable charm, which is not possessed by any object of pure nature, by rock, tree, field, or mountain, which is always, from the vital forces within it, for ever renewing itself. We know, looking on the Colosseum or Pantheon, that it has witnessed the events of human history for 2,000 years, and it has, in addition to its original and acquired physical beauty, an impassioned eloquence,—a pathos that thrills and moves the heart. The light of ancient days is on it, the lingering beams of a departed glory, and the shadows still hover over it of the important events or renowned deeds of the illustrious, of which it was the scene or the witness.

I object to "restoration" chiefly on the ground that all this beauty and interest are entirely destroyed by it.

How completely this is done by "restoration" I was forcibly reminded awhile ago on writing a poem entitled "An Address to the Great Pyramid," based on the adage "Stone walls have ears," in which I supposed it ear and eye witness of some of the most important events of history, as "You saw this," or "Did you hear that?" and I could have gone on and imputed to it a knowledge of the whole history of the world since its erection. It struck me that not one syllable of what I said could, with any degree of propriety or any stretch of poetic licence, have been said had that pyramid been recased. It had ears, but the restorer had stopped its ears, blinded its eyes, filled its mouth with new stone and mortar; in short, made it another pyramid; and it might reply, "Oh no, sir, you are mistaken: I never saw nor heard any of those things you mention. I know nothing about the siege of Troy or any other siege. I have only just come out of the quarry. The old pyramid you take me for has been smothered and buried under me, and can neither see nor hear any more."

But this is not all. I have hitherto supposed that the restorer fulfils his implied promise to make the building all it was in its prime, with regard to artistic merit and beauty. But it is impossible. Invariably in the restoration process there is cut away carving by men who gave their whole hearts to it, and worked, not for £2 or £3 a-week, but for their souls' salvation, one square foot of which work, with the faintest vestige of what it had been, is worth more than all that is supplied by the workmen of the day. This I know was done at Chester, one of the least sculptresque of our cathedrals.

I object to restoration on this ground, and confess that the virtual disappearance of our cathedrals, by its means, has been felt by me as something like a bereavement of old and beloved friends. This would be an infinitesimally small matter to the world if it were all I could say. But the feeling which recognises and appreciates the beauty of these buildings is not an exceptional one at all, but the same instinctive feeling that appreciates beauty of any kind, natural or artificial, and common, in a more or less degree, to humanity,—a real element in human nature,—the holiest, the divinest part of it. It is simply our sense of beauty.

If, therefore, the love of ancient buildings, and desire to protect them from the restorer, are a sickly sentimentalism, then the whole of the fine arts—poetry, painting, sculpture, architecture, music—are a sickly sentimentalism; for they are all based on the same moving principle in man, and are exponents of it,—the principle from which springs everything that administers to our higher needs, including moral philosophy, and even religion itself, so far as it attracts by its moral beauty.

If the love of ancient buildings is a mawkish sentimentalism, then the whole world has been wrong in not preferring some of Watts's hymns for children (I mean no disparagement to the learned and pious divine), as, for example, the well-known one—

"How doth the little busy bee  
Improve each shining hour,"—

because they teach some useful facts, to the most celebrated lyric poems in the language, full of the most gorgeous poetic imagery and music; which tell you nothing you did not know before, but which take hold upon you by the emotional part of you,—the essence of your being,—and lift you into a purer sphere, till you feel that you are something more than an eating-and-drinking-and-money-getting machine, living by bread alone.

Prove the feeling in question to be sickly sentimentalism, and you lay the axe to the root of all the greatest productions of the human mind. Take "Othello," perhaps the grandest of all Shakespeare's tragedies, and what are all those wild bursts of passion,—those heartrending outpourings of his grief and indignation,—all the sublime expressions of his love, strong as death,—of his jealousy, cruel as the grave,—but effusions of sentimentalism equally dependent upon imagination for support and apology, and equally void of foundation in utilitarian reality? For, was not his wife, supposing her guilty, as beautiful to look upon,—as pleasing to all his senses,—as useful as the mistress of his house, and in every respect, as ever? Certainly she was. But she was all valueless in his eyes. His sentimental woes, in which we all sympathise, had poisoned this and all other blessings, till life had lost its savour:—

"Oh, now, for ever,  
Farewell the tranquil mind! Farewell content!  
Farewell the plumed troop, and the big wars  
That make ambition virtue! Oh, farewell!  
Farewell the neighing steed, and the shrill trump,  
The spirit-stirring drum, the ear-piercing fife,  
The royal banner; and all quality,  
Pride, pomp, and circumstance of glorious war;  
Farewell! Othello's occupation's gone!"

There is no comparison, of course, in degree, between the loss of a wife's fidelity and your own honour, on the one side, and the loss of a cathedral by "restoration" on the other; but they are equally ideal, or unreal, in the common acceptation of the term.

\* By Mr. Samuel Huggins. Read before Notes and Queries Society.









DWELLING HOUSES — CHLORINE — BELFAST. — FOR W. F. C. S. CORRY, ESQ<sup>R</sup>

WILLIAM BATT. ARCHITECT.



Nay, if grief and indignation at the loss of a cathedral by "restoration" is mawkish, then Othello's grief is still more mawkish; for while the cathedral pleased the eye as well as the imagination, what Othello had lost appealed to none of his senses,—it was purely sentimental.

But I could have reached the conclusion to which this points by a shorter road. If the love of material beauty is a natural passion, and a building five or six hundred years old is infinitely more beautiful than the same building when it was new, or when renovated by the "restoration" process, which the instinct and practice of landscape-painters and painters of architecture, of all time,—as Canaletto, Turner, Paul Veronese, Watteau, Prout, David Roberts,—prove it to be,—for what landscape-painter ever sat down before a new building?—then there can be nothing mawkish in preferring the old to the new,—the old still farther endeared by its talismanic power of calling up visions of the past,—or in bewailing the loss of the old by restoration or any other misfortune; and the poet Gray might have composed as pathetic an elegy or lament as well based on the feelings of human nature over the old country church, in which "the rude forefathers of the hamlet" worshipped, and beneath the shadow of which they were buried, as he did over their graves in his celebrated "Elegy," had that church been restored. Yet I believe there is no more popular poem in the English language than that elegy.

These arguments must leave the advocates of restoration without a leg to stand upon; and I believe the chief of them have become conscious of this; for if any really rational and consistent plea could have been framed in its favour, assuredly they would have framed it, and built a Society upon it. Let me conclude with an exclamation that burst from my pen some ten months ago in a letter to the *Builder*,—"Absurdity, thy name is Restoration!"

#### HOUSES, UNIVERSITY-ROAD, BELFAST.

THESE houses, which have been recently completed, are erected on the University-road close to the Royal Botanic Gardens. One is a single house, and the other, having windows in the gable, is a double one, but owing to the original way the elevation has been treated by the projections in front, they look like a pair of single houses. The outside is faced with best perforated brick, having Staffordshire blue ones used where shown. The columns at sides of hall-doors are Bessbrook polished granite, having moulded bases and richly-carved caps of freestone. The front sashes are all glazed with best plate-glass, hung with copper chain, and the interior woodwork throughout is picked pitch pine stained and varnished; and as the houses stand high above main road, they have a very prominent position. The work has been executed in a satisfactory manner, from the designs and under the superintendence of the architect, Mr. William Batt, jun., by the contractors, Messrs. J. and R. Thompson, of Ballymacarrett.

#### LECTURES ON ARCHITECTURE BY PROFESSOR BARRY, R.A.

A COURSE of six lectures will be delivered by Professor E. M. Barry, R.A., at Burlington House. The first lecture commences on the 30th of the present month. Though the lectures are primarily intended for the students of the Royal Academy, other persons will be admitted by ticket as far as space may be available. The following are the subjects:—

Jan. 30.—"Recent Artistic Losses—The Gothic Revival and Sir Gilbert Scott."

Feb. 6.—"Italian Gothic the Precursor of the Renaissance."

Feb. 13.—"Italian Gothic in Secular Architecture."

Feb. 20.—"Early Renaissance: Brunelleschi."

Feb. 27.—"Second Period of the Renaissance: Bramante and Sansovini."

March 6.—"Third Period of the Renaissance: Palladio and Vignola."

#### THE LOCOMOTIVE.

They call me a mass of iron and brass;  
They say that a spirit I lack;  
That my real soul is the grimy man  
In the wooden pen on my back;  
That the flame I devour and the steam in my veins  
Are the creatures of man alone,  
And I have no mind but the mind of men,  
Those beings of flesh and bone.

Let them say if they will, and whatever they will,  
Though had they but noted me when  
I was scurrying over the iron rails,  
The wonder and pride of men—  
Had they watched as they might, they had seen a will,  
As I sped on my iron path,  
And a purpose of terror when once I awoke,  
And aroused to a terrible wrath.

I have borne their yoke in a patient way  
For many a weary hour—  
The pity that filled my massive breast  
Forbade me to use my power;  
But I am not always a passive thing,  
Nor forever with joy I scream,  
As I rumble and clatter and scurry along,  
With my nostrils breathing steam.

For when they are proudest to think me theirs  
My patience a moment fails,  
And then, with a thousand wretches behind,  
I leap from the guiding rails  
Over the lofty embankment side,  
And plunge to the depths below,  
While the careless laugh of the people I draw  
Is changed to shrieks of woe.

And so to-night, in the midnight deep,  
With my glaring eye I peer  
Through the darkness that covers the path before,  
And I startle the engineer;  
For I whirl from side to side,  
And I pant and struggle and scream with delight;  
Reverse! down brakes! there's a tree on the track,  
And Death rides abroad to-night!

Some are asleep in their seats, and dream;  
And others, in accents gay,  
Are telling light stories of what they have seen,  
Or discussing the news of the day;  
And some are thinking of things long past;  
And others again there be  
Who are longing to meet their children and wives  
In the homes they never may see.

A jar and a crash! I scream as I leap,  
And feel my stout ribs bend;  
While the cars they crush like houses of card,  
And their strong beams splinter and rend;  
And here is a head, and there is a limb,  
And mark, when the lights are brought,  
The quivering flesh that once was a shape,  
And walked and talked and thought!

You say that I am an inanimate thing;  
That I neither can know nor feel;  
That merely steam through an iron rod  
Is moving my driving wheel!  
Why, I planned this thing, and brooded alone,  
And thought of it day by day,  
And waited my chance, and bided my time,  
As I sped on my tiresome way.

You builded a monster of iron and brass,  
And you fed it with water and flame,  
And you thought it a creature your finger-touch,  
Whenever you would, could tame:  
Had you known its temper, or studied its ways,  
You never had felt its might,  
And the mangled dead on the cold earth spread  
Were living and merry to-night.

#### ADVERSARIA HIBERNICA,

##### LITERARY AND TECHNICAL.

IN "Hollinshed's Chronicles" there are some curious accounts of mixed fact and fiction about several of our old Irish cities and towns. His story anent the foundation of New Ross, and the erection of its walls and fortifications, is a most amusing one, and the language of the old chronicler is not very choice in some particulars. We have another very curious account of the erection of the walls and fortifications of New Ross in 1265, among the Harleian MSS. in the British Museum. Towards the end of the volume there is an interesting poem, supposed to be from the pen of Father Michael Kyldare. This poem is written in Norman-French, and if the statements are true, they certainly throw some useful light upon the early topography and history of the town of New Ross. If, as stated, the ecclesiastic was an eye-witness, his account is entitled to credence, and he is certainly confirmed by other historical state-

ments. Here is how our old author commenced his poem:—"I have an inclination to write in romance, if it please you to hear me; for a story that is not listened to is of no more value than a being. I pray you, therefore, to give attention, and you shall hear a fine adventure of a town in Ireland, the most beautiful of its size that I know in any country. Its inhabitants were alarmed by the feud between the two barons, whose names you see here written—Sir Maurice and Sir Wantre [Maurice Fitzmaurice and Walter de Burgh]. The name of the town I will now disclose to you: it is called Ros—it is the New Pont de Ross."

In what follows next we have a very good illustration of a mediæval organisation of labour for performing a needful and particular piece of building construction. All the crafts and trades in the town appear to have rendered their services, as well as those specially belonging to the building trades. Here is how the principal men of the town and commonalty, according to our author, took measures for the safety of their town. The work of the fortifications commenced on the feast of the Purification (February 2, 1265), the line of circumvallation was marked out, and workmen hired, numbering a hundred and upwards, each day came to labour under the direction of the burgesses. When this step was taken, they again met, and a bye-law was established, which according to our author was never heard of in England or France. The bye-law proclaimed to the people was received with applause, and was as follows:—"That on the ensuing Monday the viutners, the mercers, the merchants, and drapers should go to work at the fosse from the hour of prime till noon." This was readily complied with, writes the poet, and above one thousand men "went to work every Monday with brave banners, and great pomp, attended with flutes and tabors. So soon as the hour of noon had sounded these fine fellows returned, come with their banners borne before them, and the young men singing loudly and carolling through the town. The priests also accompanied fell to work at the fosse and laboured right well, more so than others, being young and skilful, of tall stature, strong, and well housed. The mariners likewise proceeded in good array to the fosse to the number of six hundred, with a banner preceding them, on which was depicted a vessel; and if all the people in the shops and barges had been hired, they would have amounted to eleven hundred men." From this it might be argued that the town was of importance at that early date as a mercantile port. "On Tuesday the above party was succeeded by another, consisting of the tailors, cloth-workers, tent-makers, fillers, and celers, who went out in a similar manner as the former, but were not so numerous, amounting to only four hundred men. On Wednesday a different set was employed, viz., the cordwainers, tanners, butchers, many brave bachelors were among them, and their banners were painted as appertains to their craft. In number I believe there were about three hundred taken together, little and great, and they went forth, carolling loudly as the others did. On the Thursday came the fishermen and hucksters. Their standards were of various sorts; but on one was painted a fish and platter; these, five hundred in number, were associated with the wainwrights, who were thirty-two in number. On Friday went out the . . . [illegible], in number three hundred and fifty, with their banners borne before them, unto the border of the fosse. On the Saturday succeeded the carpenters, blacksmiths, and masons, in number about three hundred and fifty. Lastly, on Sunday [the better the day, perhaps, the better the deed] assembled in procession the ladies of the town! Know verily that they were excellent labourers, but their numbers I cannot tell; but they all went forth to cast stones and carry them to the fosse. Whoever had been there to look at them might have seen many a beautiful woman—many a mantle of scarlet, green,



and russet—many a fair folded cloak, and many a gay coloured garment. In all the countries I ever visited never saw I so many fair ladies. He should have been born in a fortunate hour who might make his choice among them." We are told that the ladies also carried banners, in imitation of the other parties; and, when tired of the duty assigned to them, they walked round the fosse, singing sweetly, to encourage the workmen. Verily this picture of labour in New Ross in the thirteenth century is unmatched in the annals of Greece and Rome, if the poet has not been drawing on his imagination.

*Apropos*—the rest of the picture is not out of keeping with that part already described. The poet tells us:—"On their return to town, the richer sort held convivial meetings, made sport, drank whiskey, and sang." They encouraged each other, and it was resolved that a gate should be made to be called the Ladies' Gate, there fixing a prison. "The fosse was made twenty feet in depth, and its extent extended above a league. When it shall be completed they may sleep securely, and will not require a guard; for if forty thousand men were to attack the town they would never be able to enter it, for they have sufficient means of defence; many a white hauberk and haubergeon—many a doublet and coat of mail, and a savage Garçon—many a cross-bow man have they, and many good archers. Never in any town beheld I so many good glaives, nor so many good cross-bows hanging on the wall, nor so many quarrels to shoot withal, and every house full of maces, good shields, and tallevases. They are well provided, I warrant you, to defend themselves from their enemies; for the cross-bow men in reality amount to three hundred and sixty-three in number, as counted at their muster, and enrolled in the muster roll. And of other archers have they one thousand two hundred brave fellows, be assured; and besides these there are three thousand men armed with lances or axes, in the town, and knights on horseback one hundred and four, well armed for the combat." The poet is particular in informing us that the object of the inhabitants was by no means to court an assault, but simply for their own protection, "for which no one ought to blame them when the wall shall be completely carried round and fortified, no one in Ireland will be so hardy as to attack them; for by the time they have twice sounded a horn, the people assemble and fly to arms, each anxious to be before his neighbour, so courageous and valiant are they to revenge themselves upon the enemy. God grant they may obtain revenge, and preserve the town with honour! And let all say amen, for charity; for it is the most hospitable town that exists in any nation; and every stranger is welcomed with joy, and may buy and sell at his will without anything being demanded of him. I commend the town and all who inhabit it to God. Amen."

If the above detailed actions happened, and were written of in the year stated, 1265, the whole suggests various thoughts. It goes to prove that some of the provincial or seaport towns in this country had active corporations in the thirteenth century, and that Dublin was not so far ahead, if at all, of New Ross in power and influence at the same period. It would appear also from the organisation of labour carried out in erecting the walls and fortifications, that guilds of trade existed in New Ross as well as in the large capitals of the three kingdoms. The principle of free trade would appear, according to our poet chronicler, to have been recognised in New Ross several centuries before it was recognised in London or other British towns and cities. In London down to a century ago or under, foreign craftsmen were prohibited from working in the city without the leave of the Corporation of the guilds of trade concerned; and even those workmen living on the south side of the Thames were accounted "foreigners." Even in Dublin craftsmen under the old

guilds of trade required to be "free of the city," or constituted freemen by apprenticeship, marriage, or other alliance, to qualify them to work within the city boundaries.

We might tack on a long sequel to the above notes, but for the present we will content ourselves with giving one or two more items anent New Ross, from the collection of the second Randle Holmes, for the City of Chester (MS. Harleian 2173, 42). In the above there is a copy of "a certificate from the sovereign [mayor] of New Ross, *alias* Ross Ponte, in Ireland, to show how wee be free with them, and they with the City of Chester, of all customs" (29 Eliz., 1587). A seal was appended to the document, with the arms of Ross, being a greyhound pulling down a stag, and, beneath, a bridge raised on several arches, from which the appellation of Ross Pont may have been derived. Round the edge was "S. Office: . . . Superiour Newe Rosse."

It may not be amiss to point out that Camden, the antiquary, ascribed the building of the walls of Ross to Isabel, daughter of Richard Earl of Strongbow. Grose, in his "Antiquities," repeats a variation of the same tradition, ascribing the enclosure of the wall to Rose Maerne, sister of Strongbow, in the year 1310, who is also said to have built Hook Tower in the same county, and to have been buried at Ross, in the church of St. Saviour. Hollinshed's pages should be consulted for an account of "a famous Dido, a chaste widow, a politike dame, a hountifull gentlewoman called Rose," &c., *i.e.* Rose of Ross. Hollinshed's account of Rose, her husband, belongings, and friends is most amusing. If Rose fortified the town of New Ross, and did all the good acts attributed to her, she must indeed have been a rather remarkable woman, and her name deserves to live in connection with her works.

We have given the reader some facts; and if there is anything incomprehensible, we must advise him to settle the difference by sifting the grain from the chaff, for our old poets and chroniclers were a little partial to spicing reality with romance. H.

#### WHAT MUSIC MEANS.\*

NOW-A-DAYS almost everybody talked about music, and had, or assumed to have, more or less knowledge of it. It was not always so. Less than a hundred years ago the art of music was only practised by a sect. Lord Chesterfield advised his son not to demean himself by studying music, but to pay a fiddler if he wanted a tune. Now-a-days many of the greatest wits and the largest-minded men spent some hours from time to time in the study of music, and did not think those hours lost. In Dublin very little music was heard now besides that indulged in by amateurs. This, in one view, was a matter for congratulation, but when they saw that it was found impossible to maintain in Dublin a sufficient band of trained musicians to form an orchestra, and that some of their best singers were obliged to seek a livelihood elsewhere, they were forced to the conclusion that music was not on so good a footing in their city as the general practice of it would seem to imply. He wished first to give them an idea of his own musical creed. It was his conviction that if music was chosen—as it should be—as a means of culture of the highest importance, its character and tendency should be carefully looked to. Music would not give a foundation to moral character; the truth was that the foundation of all art was the moral character. In a certain sense a man should be good in order either to paint well or to sing well. Schumann said that the laws of morality were also the laws of art. A modern reviewer has justly drawn upon himself the lash of Ruskin's criticism for saying that music was the only art that had no didactic efficacy, engendered no emotion, and expressed nothing of God or

reason. Those statements of the reviewer were entirely false. An American writer complained that good dairymaids were becoming scarce, because the accomplishment of piano-playing was so much cultivated in farmers' houses. He questioned the correctness of that teaching. There was no reason why, when a girl's life was brightened with music, she should not thereby be made more capable of fulfilling all the duties of life. Music was more than a mere amusement; it was a useful thing in the highest sense of the word, namely, in so far as it enabled them to be witnesses of the glory of God. Music was a holy thing—humanising, elevating, and refining, and as much unlike the vulgarities that sometimes passed for music as it was unlike the braying of asses or the cackling of geese. He proposed to look at the art scientifically, historically, and socially. Its scientific aspect was considered by many to be dry and uninteresting; but that was not so. All true art had a foundation in science. The poet should know the rules of grammar, the painter those of colour, the sculptor the laws of symmetry and design; and music had its science also. Want of scientific knowledge led to that paddling up and down the keys of pianos which they so often heard; to those flights of "silver bells" and "cascades" on that instrument which seemed to say, "We go on for ever, always the same, and have nothing in us stronger than water." He never knew a student of the science of music who entered upon it from a sense of duty at first that did not continue it afterwards from a feeling of love and joy. There was a danger of those who cultivated particular instruments of becoming narrowed in their views of music. The singer only valued the piano as a means of accompaniment. The pianist thought his instrument the greatest of all. The tender affection of the violinist for his pet was most touching. They should not forget that all these musical instruments had each its appointed place, which could not be filled by any other. Harm was also done by students clinging too closely to one style of music. Some knowledge of acoustics was desirable for the musician. A good ear could appreciate the slightest variation from tune in a note produced by some 3,000 vibrations in a second. The middle C of a piano had between five and six thousand vibrations. Each note was not a simple sound, but contained not only the fundamental tone, but also other tones, called semitones. The musical scale was an interesting study. The scale was even now changing. The study of music from an historical point of view was most interesting. They looked in vain for any reliable account of the first beginnings of music, but it was certainly cultivated by the Greeks and Romans, and received from them a written notation. Their music was the germ from which had grown the plant of noble proportions which was now flourishing. In those days, however, harmonic combinations were unknown. Music lingered in that condition until centuries after the birth of Christ, and then it rose little by little and divided itself into two streams—one for the purposes of the Church and the other secular. Beautiful melodies were introduced by the Troubadours, and in process of time the stiffness and pedantry of the Church style and the frivolity of the secular music were abated, mutual concessions being made on both sides. It was interesting to observe the correspondence between musical and literary development. The music of Palestrina and Pergolese led to that of Handel, Bach, Mozart, Haydn, and subsequently to that of Beethoven, whose works combined all the highest excellencies. Coming to their own day, the characteristics of the most advanced music seemed to be discord and restlessness. Schiller had truly said that the artist was the son of his time. Whether the characteristics he had just mentioned corresponded to the characteristics of the literature of the present day they could judge. Some of the music of the present day might almost be called infidel music. The lecturer

\* By Mr. J. C. Calwick, St. Anne's.



then viewed music socially, and urged that there was too much solo singing and playing, and that united efforts with both voices and instruments should be more cultivated.

### CHRIST CHURCH CATHEDRAL SCREEN.

Re one of the screens which have been objected to on the part of a portion of the clergy and laity, Mr. Street, the architect of the late restoration, writes in reply to his critics:—

I have read the address to Mr. Roe on the subject of one of the screens in Christ Church Cathedral with much interest. I had seen various statements about its artistic effect on the building, and its moral effect on the worshippers, which appeared to me to be so extremely one-sided and unreasonable, that I was anxious to know what might be urged by those whose objections to what I have done might be assumed to be well considered and marked by sobriety of statement.

The objections to the screen stated in the memorial are two-fold. That which is stated to be the greater is that many people object to it on religious grounds. The answer to this, though it is not an architectural one, is obvious, viz.—that many people on the same grounds object to its removal, and that their opinion is as much entitled to respect as the opposite one, if the screen is a legal article of furniture or ornament, as to which, I suppose, there is no question. The other objections are (a) that it is of no practical use; (b) that it spoils the beauty of the church; (c) that it lessens its apparent dimensions; and (d) greatly obstructs the majority of the congregation from hearing, seeing, and intelligently taking part in Divine service. I will, with your permission, say a few words on each of these heads, premising only that they are all evidently matters of taste and opinion, and not of fact, or that, therefore, my judgment on all of them must be allowed by candid men to be of more weight than that of gentlemen who have not had any artistic or professional training.

(a) The choir screens or enclosures of our cathedrals are of so much practical use as to be all but universal in the English Communion. The office books and music books remain in the choir when no service is going on, and it is always found inconvenient to leave them unprotected. Where screens surround the choir it is possible to leave the whole of the rest of the church open all day. This is the custom in all or nearly all English cathedrals, and I hope that ere long it will be equally the custom at Christ Church.

(b) In my opinion the screen adds greatly to the beauty of the interior. The old architects thought so, no doubt, for we found remains of their screen during the progress of the works. Of the design of the particular screen it does not become me to speak; but I am obliged in self-defence to say that it is as good and as successful as anything I have ever done, and certainly equal in merit to the rest of my work at Christ Church.

(c) Those who have well studied the question know that the effect of a partial obstruction or subdivision is to increase, not to decrease, the apparent size of a building. An unbroken area like that of St. Peter's or the Pantheon at Rome always makes buildings look smaller than they really are. The sub-divisions of Gothic buildings were evidently meant by their designers to increase to the utmost their apparent size. The sub-division of parts (such as mouldings) was carried to the utmost point with the same object. The Cathedral of Christ Church is really one of small dimensions, and thanks to its sub-divisions, and above all things to the screen between the nave and the choir, it now looks much larger than it really is, and its scale would suffer immensely if the screen were removed. Of this I am as certain as I can be of anything.

(d) The memorialists are bold in their assertion that they could hear better without the screen. My confident belief is that in its absence there would be almost a certainty of a considerable echo. At present I have found myself able to hear perfectly well in all parts both service and sermon. If the screen is removed I do not believe that I should any longer be able to say this. The other objection, as to seeing and intelligently joining in the service, can hardly be quite serious. They do not apply at all to that half of the congregation which sits in the aisles, out of sight of the screen; and for those who sit in the transepts the removal of the transept screens is equally required, whilst for those who sit in the nave in full view of the screen I assert that there is no difficulty whatever in an equally intelligent joining in the service, whether there is a screen or no screen; and that for some reasons in all cathedral churches it is more productive of devo-

tional feeling to be able to join the service without seeing every attitude and every expression of the face of all those who are engaged in the musical portion of it.

Allow me to say, in conclusion, that it is a matter of extreme pain to me that there should be any controversy about any portion of this great and important work. I have done my best to make Christ Church all that it should be, and I declare, on my honour, that if the particular alteration now asked for is conceded my work will be immensely damaged, and much of its architectural and artistic effect destroyed. Surely the artist, though he may not be infallible as you say, is at least the person whose opinion is of the most weight as to what will or will not damage or improve his work. If in such a building he does what is illegal, of course there can be no question whatever that his work must be altered; but if, as in this case, he has not done so, and has devoted the whole of his knowledge and taste to make the work as good, as harmonious, and as perfect a whole as he could, he has a fair claim to ask that it may be left in its entirety as it came from his hands. Every one would concede this in the case of a painter or a sculptor, and I see no reason why the work of the architect should be less respected than that of the artists.

We think that the controversy raised is an unfortunate one, and, if persisted in, will most likely cause serious mischief. We say this much, and for reasons entirely apart from religious or architectural bias. The "restoration," as a whole, may not be without some faults. Some of these have been already indicated in these pages. As matters stand now, we think it wise to let "well enough alone."

### "THE SUPERINTENDENCE OF DUBLIN SANITATION."

WE annex an extract from an article under the above heading in the *Medical Press and Circular* of the 8th inst. The article is particularly in relation to Dr. Mapother's letter which we gave in our last issue.

In reference to the remarks of our contemporary on the head of some observations made by us, suggested by a former article which we quoted, it would not become us to say much. Our contemporary need scarcely be reminded that conductors of journals do not endorse all they publish by way of extract from other journals, or in the matter of original correspondence sent to themselves. It is their duty to give fair play by hearing both sides and giving their readers the same chance, if the subjects in question are ones worthy of ventilation. We suspect, however, our contemporary fully understood the meaning of our remarks, which we think expressed more than has been taken cognisance of. Apart from this, however, we are not concerned in finding faults where none exist, or of tripping up writers and critics of the medical profession who may be earnestly working in the same sanitary direction as ourselves. We would feel better pleased at the same time to see members of the medical profession more tolerant of one another, as well as less oblivious of the pioneer labours of sanitary architects, engineers, and other sanitary and social reformers, who in and out of season for more than half a lifetime have persistently preached and advocated social and sanitary reform:—

"Dr. Mapother says, 'the machinery for isolation—of infectious patients—removal to hospital, and disinfection, can be devised and supervised by the superintendent medical officer. He also deals with vital statistics, chemical and trade nuisances, water supply, sewerage, &c.' Here is abundant work for the whole time of the most energetic officer, and it is difficult to understand how it is to be performed in the leisure hours of a lecturing and teaching professor, who has to do the analyses of pretty nearly the whole of Ireland, and whose pen is as busy in literary work as his brain and fingers in his laboratory duties. But there is one more duty—more important in the filth-afflicted city of Dublin than all the others put together—that is, eradicating the fever-haunted tenements of the poor; ferretting out these pest houses, the enforcing cleanliness and proper sanitation in them, and watching the sanitary officers to make them active in their duty. The citizens of Dublin can afford to wait for the more ambitious schemes of

sanitation if they can only achieve simple cleanliness; and a medical officer of health would have done little towards abatement of the death-rate who had not devoted himself with all his energy to obtain that elementary requirement, and this no mere bureaucrat could do.

"We do not grudge the superintendent medical officer his retirement, nor his successor the additional salary. A few hundred pounds a-year are not worth considering when a hundred avoidable deaths in one week are before us, and the citizens would have no cause to complain if the Corporation voted £1,000 a-year to a really capable active chief officer. But the services of an officer who could only make a show of doing the duty would be an expensive luxury, if given gratis, and the citizens should resist by all means every proposition to commit the sanitary guardianship of the city to any person, however eminent, who is so situated as to be incapable of fulfilling the trust. Other cities might suffer such a job, but Dublin must not, for it is—amongst cities—the one which needs activity in sanitation, and to remit it and its public health to the unstimulated routine of the Corporation would be to confirm all the disgraces and miseries which have made a by-word of its sanitary administration."

The above remarks of our contemporary are on the whole unobjectionable. Dublin needs efficient sanitary supervision, and not much can be expected through our present municipal representatives.

### CIVIL SERVICE AND OPEN COMPETITIONS, &c.

A CORRESPONDENT, C. B. H., desires us to answer the following queries:—

1. Are the situations of draughtsmen, estimators, &c., in the Board of Public Works (Ireland) under the open competition system—Civil Service Commissioners?
2. What Public Departments (if any) are there in Ireland in which, among other qualifications, a knowledge of architecture and building is necessary?
3. Did the recent inquiry into the working of the Board of Works refer in their report to the competency of the draughtsmen, clerks of works, &c., in any way?

With regard to the first query we may reply that the situations are intended and supposed to be obtained by open competition, but the rule has not been, as it ought to be, invariably observed. There are several officials and subordinate assistants in the Board of Public Works in Ireland who have been appointed without competition.

Secondly—In all Government Departments in which engineers' and architects' assistants and clerks of works are required, of course a practical knowledge of architecture and building is indispensable. Apart from Government, in connection with municipal and local boards, harbour boards, railway boards, &c., candidates for offices under architects, borough engineers, surveyors, &c., need a practical knowledge of architecture and building, but we regret to say many youths are appointed as assistants without the proper qualifications.

Thirdly—Certain reforms were indicated and pointed out as necessary in connection with the more efficient working of the engineer's, architect's, as well as other executive branches. We have instanced these matters in our late series of articles. In a word, we would recommend our correspondent to procure a copy of the "Report of the Committee appointed to Inquire into the Board of Works, Ireland," as we think its perusal would afford him an amount of useful information.

In conclusion, all we need add is that, we will cheerfully give publicity to any information volunteered in further reply to our correspondent from any of our readers desiring to say aught concerning the question of open competition in connection with Government departments, or outside.

### ARCHITECTURAL ASSOCIATION.

At a meeting of the Architectural Association to be held on the 17th inst. a paper will be read by Mr. T. Blashill on "Party Walls—the Law of Practice," a subject of serious importance in these days not only to architects but house owners and occupiers.



## LAW.

## ACTION FOR DETENTION OF PLANS.

BALLYBOT QUARTER SESSIONS.—Jan. 2.

(Before the County Court Judge.)

Mr. Andrew Weir, described as an architect, residing in Newry, brought an action against the Newry and Armagh Railway Company to recover a sum of £20, damages caused to plaintiff by the detention of the plans of a building in transit from Newry to Lisdoonvarna.

Mr. Carey appeared for plaintiff, and Dr. McBlaine for defendants.

Plaintiff alleged that in the month of August last, by direction of Mr. Peter Quinn, J.P., he prepared plans for the building of a school-house on the grounds of Mr. Close, M.P., at Drumbanagher. Sent the plans to Mr. Quinn, who was then sojourning at Lisdoonvarna, on the 24th of August. Booked the plans as a parcel at the Edward-street Railway Station. Produced a receipt given by the company, which was marked to Lisdoonvarna, but paid to Dublin. Plaintiff stated that the booking clerk told him that he would only take payment of the parcel to Dublin, but that he would have it forwarded to its destination. By some means the parcel did not reach Lisdoonvarna in proper time to allow Mr. Quinn and Mr. Close to examine the plans, and the result was that plaintiff had to make another set, at which he had to work all night, and he now claimed £10 for the loss of the first set, which turned up at Newry on the 28th of September, and £10 for the preparation of the second set.

His Worship having examined the receipt, said it was merely a description of the parcel, and the question was whether the company was liable. He asked the plaintiff what was the time within which Mr. Close required the plans?

Defendant—About the 17th or 18th of September.

Dr. McBlaine said the company was not responsible for the carriage of the parcel beyond Dublin.

In cross-examination plaintiff said beyond receiving a letter from Mr. Quinn, he knew nothing about the non-arrival of the plans in Lisdoonvarna.

Dr. McBlaine said the case must fall through on this point. There was no evidence to show that the parcel was not delivered at Lisdoonvarna.

Mr. Carey said he would produce Mr. Quinn in court, if the case was allowed to stand over for a short time.

Dr. McBlaine said in point of fact Mr. Quinn had left Lisdoonvarna before the parcel could possibly reach it.

The case stood over for the attendance of Mr. Quinn, who, when examined, said he never received the parcel in Lisdoonvarna.

His Worship dismissed the case.

## ACTION FOR BUILDING MATERIALS.

*Brooks, Thomas, and Co. v. McIlveney.*—Mr. Carson applied for a garnishee order. An affidavit by John Brooks, one of the plaintiffs, stated that in September, 1878, the plaintiffs obtained a judgment against the defendant for £30 2s. 9d., amount of an unpaid account for building materials supplied to him. Defendant had a contract to build a police barrack in the county Galway, and the work had been accepted and a sum paid on account, which it was sought to attach.

Mr. Baron Dowse—For whom was the work done?

Mr. Carson—For the Board of Works.

Mr. Baron Dowse—I don't see any specific statement that there is a debt due by defendant for which an action could be brought. The Board of Works are not a corporation, and used to be sued by Mr. Hornsby, their secretary.

Mr. Carson—It is stated in the affidavit that the work done has passed the local inspector, who granted his certificate.

Mr. Baron Dowse—But the affidavit is

defective. There is nothing to show that the law could enforce the debt against the Board of Works.

Mr. Carson—The goods were supplied for the very purpose of enabling defendant to perform the contract, and we have no other way of obtaining payment.

Mr. Baron Dowse—There is no use in preaching a sermon, because you have no text! You have no materials for the discourse.

An amended affidavit was subsequently produced, and the order sought for granted by the learned judge.

## CORRESPONDENCE.

## A CITY IMPROVEMENT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Your paper would, I think, be the best medium of calling attention of the proper authorities to that plague-spot of our city, "Bull-lane." It has occurred to me that by taking down the block of houses from Greek-street to Bull-lane, and building a new Commission Court on the site, they would be doing a great public benefit, and thus get rid of this nest of iniquity. The new court, being in the immediate neighbourhood of the Law and Police Courts, would be a great convenience, and the owners of the property would, I am satisfied, not throw any difficulty in the way.

W. H. PIKE.

[The suggested improvement is worthy of consideration.—ED. I. B.]

SANITARY CERTIFICATES, AND  
SANITARY INSURANCE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I enclose herewith a copy of a circular on the above subject that has been publicly distributed through this city, and which, it seems to me, calls for some equally public notice, as, consequent on the absolute terms of the proposed certificate, I would wish to know by what course of training, or under what authority, the gentleman alluded to in the prospectus has attained that position, that we are to accept his *ipse dixit* on sanitary questions? especially as the late controversy in a contemporary on the "Norman Shaw" *versus* the trapped system of soil-pipe shows that many other and equally eminent authorities are still at variance on such matters.

Again, there is something of a levelling-up character in the statement that these self-constituted "sanitary engineers" (with innumerable *aliases*) "are prepared to advise with architects, surveyors," &c., that I was not quite prepared for, as I have, in my ignorance, always regarded the position as nearly reversed. And it is gratifying to find the Government sustaining my conservative ideas, for, in the late Public Health Act I find the approval, or otherwise, of sewerage, drainage, or plumbing works is not deputed to a "sanitary engineer," but rests in the hands of "the surveyor" and "sanitary (medical) officer" of each district. It is to be feared that difficulties will arise between these officers and the grantors of these sanitary certificates. And, again, what have the architects and doctors to say as a body? for, putting aside the *glass, frame, and parchment*, is it not reasonable to think that any professional man, whose attestation is worth having, would require to make a thorough examination of the premises and work in question? and are we to believe that medicine and architecture have really sunk so low, that their respective practitioners are so hard up that they will give their time, incur large moral responsibility, and in the end be rewarded by something like one-half the tradesman's estimate of the value of his own time and labour? No, sir; and with all respect for them, instead of puffing this newly-imported Transatlantic idea, which on its present footing cannot survive the gilding of the framing, I would suggest that the gentlemen in ques-

tion, while sticking to their trade, would take another Yankee notion, and do something to distinguish and encourage the real good workmen by a system of registration and licensing, and leave "sanitary certificates" to public sanitary authorities, or even to that useful body the Sanitary Association.

As to "Sanitary House Insurance," is it not a question that might be dealt with, and would be worthy of the consideration of general insurance companies? They charge for all extra fire-risks in house property; in the same way let them insure drains laid according to the terms of, and approved by the officers appointed under, the Public Health Act before alluded to; and let a penal clause be inserted in all new life policies that insured residents in this country must reside in buildings whose drains have been certified by the proper officer, or pay special rates, or forfeit all benefit.

AN ARCHITECT.

Dublin, January 13th, 1879.

HIGH PRICES AND LOW PRICES—  
CHEAP FURNITURE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In your last issue you quote from an article in the *Builder* on the subject of furniture and the way in which it is sometimes got up. Whilst I agree with the statements put forward I cannot altogether blame the manufacturer, because the fault, in many cases, lies with the customer, who will prefer to buy a badly-finished and cheap article to one a little more expensive but more durable. This, of course, causes the manufacturer to make the article for which there is a demand, to the utter neglect of what is good. Many persons imagine they get a bargain in the low-priced article, but the cloud soon fades from their eyes, and they discover to their cost that the high-priced is the cheaper in the end. However, the custom of looking for cheap articles has got so much into the habits of the people that I fear a long time will elapse before they are properly rid of their delusion. I firmly believe that if goods of genuine manufacture were encouraged, bad articles would not long be pushed on the public. It is the same in the building line. I have known a low tender to be accepted, when it would be well known that the estimate was entirely out of proportion to the amount of work required to be done. This either causes a crash to the party tendering, or else a total suspension of the work by him; and, finally, the work has to be given to the person whose tender is higher, but which will allow him to complete his contract honourably and with satisfaction. Could you manage during the new year to give illustrations of decorations, &c., to buildings, and explanations of the work? This, I am sure, would make your journal more valuable, instructive, and acceptable to the workman reader. Excuse this long note. I hope the matters referred to herein will be remedied by the parties concerned.

A. K.

Galway, January 3, 1879.

INTERESTING DISCOVERY  
IN THE ROUND TOWER OF  
KILMACDUAGH.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Time had been effecting sad havoc among the ecclesiastical structures which arose in the course of centuries around the Tower and Cathedral of Kilmacduagh. Some have long since sunk into ruin, leaving scarcely a trace to mark the sites on which they stood; and even those which have survived—though standing, with their venerable ivy-wreaths upon them, as crowned conquerors of time—were crumbling fast. But it is a pleasure to learn that the work of ruin and decay has been arrested there. Those who feel with the poet that—

..... "Even the faintest relic of a shrine  
Must help to wake some thoughts divine,"

—those interested in the preservation of the memorials of the faith and civilisation of our forefathers—will rejoice to learn that the



interesting group of ecclesiastical ruins at Kilmacduagh are even now preserved by the Board of Works, for the admiration of future generations. I feel confident that the manner in which this desirable and laudable work of restoration has been carried out shall command general approval.

The crumbling doorways and decaying arches of the old cathedral are once more as they were designed by our ancestors in the remote past. The sculptured mullions and the elaborate tracery of the windows, which had been lost for years beneath the mould of the cemetery, or were hidden by its rank grass, have been recovered and replaced in their original positions. And future visitors shall see that the many additions of different periods and styles, which have given the form of a Greek cross to the original oblong church, have secured to the venerable pile a grace of outline and a harmonious blending of incongruities quite unique among our ancient Irish churches.

In the Abbey Chapel, too, striking changes have been effected. Delicate mouldings and clustering columns, long hidden by the ivy, are now visible in all their original grace of outline and proportion. Capitals wrought in the purest style of mediæval Celtic art are again placed as they had been centuries ago, when Bishop Ileyan restored the abbey for the Canons Regular of Saint Augustine. And the beautiful chancel window of this abbey, of which Mr. R. R. Brash has given an accurate engraving in his valuable work,\* has received all necessary attention, and may now be studied with advantage and pleasure. The Lady Chapel, also, is in process of restoration. The rubbish by which the interior of all these churches had been disfigured has been carefully removed—a course regarded with extreme disfavour by the peasantry of the district, as it involved a necessity of interfering with many of the ill-kept graves. The attempt might have been resisted;—certainly its success would have been extremely doubtful were it not for the marked interest in the improvement of the cemetery, as well as in the work of restoration, manifested by the much-respected parish priest—the Very Rev. T. Shannon, V.G.

I regret to say that the remaining little church known as St. John's Oratory is seemingly destined to be suffered to sink into total ruin. It is true that the southern side wall and portions of the little chancel alone remain. Yet I respectfully submit that as a specimen of our old cyclopean churches, and one of the most ancient at Kilmacduagh, it is well worthy of preservation. I would also add that as one of the existing group of ecclesiastical buildings there, its neglect would be painfully out of harmony with the liberal spirit in which the work of restoration has been hitherto accomplished.

It is the complete restoration of the Round Tower which, perhaps, shall excite the most general interest. The tower, like the churches, was fast decaying. Within late years a great portion of the south side had fallen; and there were evidences to justify the gravest apprehensions regarding a considerable portion of what remained. But the ruined portion has been rebuilt, and the tower rises, with cone complete, to its original height of 110 ft. The precaution of protecting the tower by means of a lightning conductor has been wisely adopted. It became necessary in consequence to excavate the interior, in order to convey the conductor to the earth. It was this excavation which led to the discovery of human remains below the level of the foundation. This discovery possesses additional interest when considered in connection with a proof of the Christian origin of our Round Towers advanced by Miss Stokes. It will be remembered that the proof to which I refer is based on a discovery of a similar nature made not many years ago in the Round Tower of Kilkenny by the Rev. James Graves.

The foundation of the Round Tower of Kilmacduagh is but a few feet below the surface level, and rests simply on the virgin earth. And this alone would, I think, account for the well-known fact that the tower leans considerably from the perpendicular. I may here direct attention to a noteworthy feature in the internal construction of the basement storey. From the surface level to the first internal offset—a height of about 6 ft.—the masonry is exceedingly massive, rugged, and irregular; and the internal area of the tower is, consequently, very limited, though its external circumference is about 56 ft. The remains were found at an average level of about 18 in. below foundation; not, as might be expected, in the centre of the area, but at either side, and partially under the foundation itself. Two skulls were found, seemingly in the same grave, though some feet apart. In connection with one I saw the spinal column nearly perfect, and also some portions of the ribs and arms; this skeleton lay with the face due east. In connection with the second skull I saw no bones; yet there may be some: I did not search, as it seemed to me to be dangerous to remove the earth in any considerable quantity from under the foundation; and in addition I was unwilling to disturb the earth lest the remains might be thus changed from the position in which they were originally placed. I regret to say that in the slight effort we did make to remove the earth, some fragments of the skulls were broken. It appeared to me that the face of the second skull also looked eastwards.

At the opposite side, and at the same depth, was a third skull with the face looking north-east. As it was solidly embedded in the earth, we were careful to leave it undisturbed. I was informed by Mr. Scott, the intelligent and efficient superintendent of the works, that a portion of the skeleton had been found there, but it was unfortunately disturbed during the excavation. Near this, but deeper by about a foot, we found other remains which we believed to be human, embedded in soft black mould. Not knowing, however, with certainty, the part of the human body to which they belonged, I could not undertake to say in what position the body had been originally placed. Close to where they lay I observed a cutting through the hard loam, easily traceable, as the loam was quite different in colour and solidity from the mould in which the bones lay. Probably this cutting showed the side of the original grave; and if so, its direction seemed to be from south-west to north-east.

And here it may naturally be asked: Did these interments take place after the tower was erected? The excavation of the tower proves, as I think, that an interment within it after its erection would have been a matter of extreme difficulty. It was found that the foundation storey was filled with fragments of stone and shingle, well packed together, and quite unlike the other loose strata by which the tower was filled to the doorway—a height of about 20 ft. It is also noteworthy that this packing was so weather-stained as to be quite similar in colour to that of the masonry where it had been found. It would seem, therefore, pretty probable that the basement storey had been thus carefully filled up by the builders of the tower as a part of the original plan. Nor would this have been unusual in the case of the Kilmacduagh Tower. Dr. Petrie distinctly states that the basement storey of the Round Towers was commonly filled up with masonry. And even though the entire internal area were quite open, it seems too limited for an average grave, the diameter being only 5 ft. And finally, the soft and yielding nature of the foundation, and the leaning of the tower itself, would have suggested to the most thoughtless the extreme danger of excavating such a foundation to such an extent as would have been necessary for the interment of four human bodies of at least average height.

I conclude, therefore, that the interments

were prior to the erection of the tower. And, as the complement of the same enquiry, one other question suggests itself, namely—Were the remains Pagan? or were they Christian? What we know of the mode of sepulture among the Pagan Irish makes it seem highly improbable that they were Pagan. On the other hand, the position of the remains, coinciding as it does with a time-honoured practice of the Christian Irish in burying their dead, renders it extremely probable that they were Christian.

If these conclusions be well founded, they would show that the Tower of Kilmacduagh was erected in Christian times; and this conclusion alone harmonises with local traditions, wide-spread and well-defined, which ascribe the erection of the Tower to the eminent builder Gobhan, for Saint Colman MacDuagh, in the beginning of the seventh century. It is noteworthy that this tradition has been accepted as trustworthy by such writers as Father Walsh and Dr. Petrie; that the period in which the Monastery and Church of Kilmacduagh were erected is exactly that in which the celebrated architect flourished; that the Towers of Kilmacduagh, Killala, and Antrim alone are attributed to him; and that in those towers the architecture harmonises with the churches of that period. I know there are some who may question the identity of style between the most ancient portion of the Cathedral and Tower of Kilmacduagh. For my own part I can say that recurring opportunities of observation only confirm me in the acceptance of Petrie's opinion, that the Church and Tower of Kilmacduagh may be taken as even a "remarkable instance of this identity," both being decidedly Pelasgic.

I may be permitted to express a hope that the facts at least which I have attempted to lay before your readers, if not the conclusions which I deduce from them, shall possess an interest for the many who devote time and attention to the absorbing subject of our ancient Irish architecture, and the origin of our Round Towers. The discovery at Kilmacduagh merits, in my opinion, careful investigation at their hands. J. A. F.

## THE MACHINERY OF GAS TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Alliance and Consumers' Gas Company having given notice of their intention to apply to Parliament during coming session for leave to bring in a bill to effect certain objects, and as by the 16th clause of that bill it is evidently sought to continue with an additional staff and, as a matter of course, additional salaries, the present system of gas meter inspection by the Dublin Corporation at the cost of the city ratepayers, I beg permission to shew, through your columns, why the ratepayers and the gas consumers generally should oppose the passing of that bill in its present form.

The inspection of gas meters and the inspection of public lighting form one department among the Corporation offices. Its cost, for three salaries (two of which erroneously appear in the Corporation accounts under the head of lamplighters' wages), repairs, sundries, &c., from the 31st August, 1872, to 31st August, 1877, amounted to £4,000, if not more, and the amounts received as fees for proving the accuracy of gas meters by the standard gas holders or gas measures, and sealing them as correct during that time, amounted to £802 16s. 6d., leaving a balance of over £3,000 which the ratepayers had to make good. About one-fourth of the meters in use in the gas district are to be found in the city. Nearly the balance of them are in action in the townships, a good many of them being used in the County Wicklow. I therefore submit that it is unjust to saddle the city ratepayers with the cost of supporting a gas meter testing department, the benefits arising from which, if there be any, are mainly enjoyed by parties who do not contribute to the city rates, and that the Gas Company who really profits by the action of those gas meters is the proper source from which those salaries, &c., should come. The gas inspector to the Board of Trade is paid by the Gas Company. He issues weekly reports on the illuminating power of the gas and the amount of pressure on it, thereby leaving the reports of the corporation official as superfluous as they are incomplete, the notice of the pressure having been omitted from them for some time past.

\* "The Ecclesiastical Architecture of Ireland to the Close of the Twelfth Century," &c., 4to, with fifty-four illustrations. To be had at our Publishing Office, at the reduced price of 12s. 6d.



The system of meter-testing, as carried out by the Corporation, has been a mockery, the work having been done, to say the least of it, in a "happy-go-easy" fashion. In December, 1875, the Warden of Standards wrote to the Dublin Corporation stating that he would send over his deputy to examine the Dublin copies of the standard gas measures, and that that officer would reverify them without any expense to the Corporation; but these standard gas measures were found by that official to be so very incorrect that their further use was prohibited until they would undergo the necessary readjustment, the cost of which was £110; therefore, the gas meters that had been verified as correct by comparison with these incorrect standard gas measures must have been very much astray in their infallible indications of the bulk of gas that passed through them. As far back as 1865 the inaccuracy of these standard gas measures was freely spoken of, and some persons said "they had been improved." Possibly the parties working with them might not have been aware of their erroneous condition, but to induce belief in such a supposition it must be taken *cum grano salis*, for the reputed skill of those persons as "wet meter cobblers" stood very high. Our local history informs us that for some time past any question affecting the gas company's interest was neutral ground, on which the majority of the members of the Corporation, liberal and conservative, economist and home ruler, all united and worked harmoniously together, whether it was in the questionable appointment of the Inspector of gas meters—in neglecting to obtain from the gas company and put in the Corporata funds £500, the sum allowed them for their mild opposition to the gas act of 1874—in the withdrawal from the weekly reports the notice of the amount of pressure on the gas supply, and so helping to keep the gas consumers in ignorance of the means by which the amounts of their gas bills were increased—in shelving the report of the general purposes committee on the loss entailed on the city gas consumers by that unjust and excessive pressure—or by neglecting to institute an inquiry as to the length of time the standard gas measures were in error, *how it occurred*, and the amount of money loss those erroneous instruments caused to the gas consumers. In the abstract of the Corporation accounts for the year ending 1876, there appears an item of "travelling expenses of inspector visiting London, reverification of gasholders, £13 17s. 9d." Common sense prohibits the idea being entertained that he would be allowed to interfere in the reverification of those standard gasholders. Was he sent there to give the Warden of Standards some plausible account of the manner in which those standard gasholders became so erroneous, and so prevent public exposure?

I therefore submit that the Dublin Corporation have forfeited any right to have the supervision of gas meters under their control, and that the city ratepayers should be no longer taxed for the support of a gas meter department. I respectfully suggest that the 16th clause of the Gas Company's bill should be so amended that the supervision of gas meters, indices, &c., would be carried out by the Board of Trade or the Board of Works, and that the Gas Company would defray all the expenses of that supervision. Also, that a clause would be introduced into the bill, specifying the maximum and minimum amount of pressure that might be put on the gas supply, every departure from which to be made penal by the board on the report of their inspector.

JAMES KIRBY.

11th January, 1879.

### PUBLIC HEALTH IN DUBLIN.

THE following report (official) has been supplied to the Press as the outcome of the meeting of the Public Health Committee, held on the 10th instant:—

"The Superintendent Medical Officer reported that the deaths registered during the past four weeks had been 1,017 or at the rate of 42 per 1,000 annually the number for the ten year average being 699 of these deaths 325 were in public institutions but only 22 of deceased were traced to have come to Dublin from districts outside it; with (sic) workhouses asylums and hospitals which receive the old and infirm from distant places, the death-rate of our city is unduly raised.

Zymotics caused 172 deaths or 38 over the average and 64 were by smallpox.

It is to be feared that vaccination and re-vaccination have not been effectually done on a large proportion of our population especially those which come from country districts

Diseases of the breathing organs carried off 374 persons (namely very young and very old) a number considerably over double the average a temperature 11 degrees below the ten year mean dearer food

increasing temperature scanty fuel and clothing neglect of ablution and tenement houses becoming gradually more ruinous and the plain causes of this shocking mortality. The two last are alone within corporate control."

The reasons assigned in the last paragraph will not hold good as a whole, although some of the causes put may have been auxiliary to leading to the high rate of mortality. Verily the Corporation is on its trial!

### THE CORPORATION AND THE LOCAL GOVERNMENT BOARD.

THE following correspondence and resolution, published since our last issue, are pendant to what has already been made known in our columns *re* the proposal to grant Dr. Mapother a retiring pension, and to amalgamate the offices of Superintendent Medical Officer with that of Medical Officer of Health:—

Local Government Board,  
Dublin, 2nd Jan., 1879.

SIR,—The Local Government Board for Ireland have had before them the minutes of the Public Health Committee, Dublin, of the 29th November and 6th December, 1878, on the subject of the proposed retirement of Dr. Mapother from the office of Consulting Sanitary Officer and Medical Superintendent Officer of Health, to which he was appointed in pursuance of the Orders under Seal of the 21st October, 1874, and of the 10th December, 1877, respectively. It is proposed, it appears, to grant Dr. Mapother a superannuation allowance of £120, and to elect Dr. Cameron, who was appointed Medical Officer of Public Health under the former order, to both the offices in question, at a salary of £400.

It is supposed, according to the minutes, that the proposed compensation to Dr. Mapother as a superannuation allowance could be granted in pursuance of the section 275 of the Public Health Act, 1878, but this, in the opinion of the Local Government Board, is an erroneous conclusion. Compensation can only be granted under that section in cases of removal from or deprivation of office by the operation of the act, or by any provisional order made under it; and, as no such contingency has arisen in the case, the proposed charge upon the Corporation funds could not be properly made. It will be seen that the orders of the 21st October and 10th December, above referred to, require the appointment of two separate officers; and, as at present informed, the Local Government Board are not able to approve the proposed amalgamation of offices, nor consequently to rescind the orders.

W. D. WODSWORTH, Assist. Sec.

The Secretary,  
Public Health Committee.

In reference to the above the following resolution was adopted at a meeting of the Public Health Committee:—

"The recommendation to the Local Government Board of a change such as that contemplated could only be made so far as the Dublin sanitary authority is concerned, by the Municipal Council, and not by this or any other committee. The committee, therefore, regret that the Local Government Board should have come to a decision upon the subject before the sanitary authority had an opportunity of considering whether it would recommend it or not. Had the Board awaited the discussion of the subject by the sanitary authority they might have been more fully informed as to the reasons which caused, and still cause, the committee to think that the proposed change, if effected, would be a most beneficial one. The committee regret that they cannot but consider the premature decision of the Board upon a matter of such public importance, a decision which, in the opinion of the committee, will retard sanitary improvement in Dublin."

In the light of the preceding resolution of the Public Health Committee and other preceding resolutions of the same body, as also of the Municipal Council, or "committee of the whole house," it is difficult to say whether it is the major body or the branch thereof claims to "rule the roost." One time the council is "cock of the walk," and on the next occasion the Public Health Committee is put forward as the game bird. For the credit of municipal government we think the Corporation should once and for good acknowledge its proper position and meet its responsibilities as becomes a civic body. It is too late in the day to be trying to play

tricks upon the citizens and ratepayers by silly and erratic tactics. The municipal body *in globo* is responsible for the honest and efficient administration of the sanitary acts, and it should be compelled to do its duty if there be any determined attempt made to evade it by despicable quibbles and delays. We will not go so far as to say that a job was intended in the instance under notice, but we do say that the proposal of the Corporation, apart from the ability of the City Analyst, would not in our opinion be a commendable one to carry out. We need an efficient sanitary supervision in this city—an organisation worked by a wise, active, and experienced chief, who should be required to devote the whole of his time to his duties, receiving, of course, a salary commensurate with his labour and worth.

### THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on Monday evening,

Sir ROBERT KANE, Bart., in the chair.

Mr. Robert S. Ball, LL.D., F.R.S., read a paper "On some Speculations with regard to the possible Origin of Meteorites."

Dr. Ball did not claim that his theory was absolutely original, but as he had made some calculations he desired to place before the Academy the result of them. He thought that shooting stars and meteorites should not be confounded with one another, for there was no doubt of their being of distinct origin. He concluded that from whatever planet the meteorites came they were of volcanic origin. The most probable theory was that the meteorites were at an early period fired from terrestrial volcanoes with a velocity of about six miles per second, and that they were now falling back on the earth.

Rev. Maxwell Close asked Dr. Ball whether the theory of Mr. Proctor was accurate that the sun was the origin of the meteorites, and that that was the reason why so many of them fell on the side of the earth next the sun—namely, by day?

Rev. Professor Haughton said he was not prepared to admit that meteorites had an origin similar to that of volcanic rocks. If Dr. Ball could establish that meteorites were of terrestrial volcanic origin he would be furnishing a great weapon against these geologists who said that the earth was always going along as it does now, for it would be a draft on his imagination too heavy for him to cash if he was asked to believe that even so modern a volcano as an eruption in the miocene period could have projected rocks at the rate of six miles per second. His (Dr. Haughton's) theory was the nebular theory—that these stones were really part of the earth and should have come in loyally long ago towards forming the body to which they owed allegiance. As to Rev. Maxwell Close's question, the reason why more meteorites fell in the day-time was that more people were abroad to see them by day, when the sun was shining.

Dr. Ball said he believed the projections took place at a much earlier period than the miocene period, and even before stratified rocks commenced, and when volcanic eruptions were probably very different from volcanoes of any of these periods. That the sun was the source of meteorites could not be maintained for a moment.

The paper was referred to Council for publication.

The Council have recommended the Academy to make the following grants out of the Parliamentary Grant in aid of Scientific Research: £10 to G. H. Kinahan, for prosecution of his studies of the constituents of granite; £25 to E. W. Davy, M.D., and C. A. Cameron, M.D., towards the prosecution of researches into the compounds of selenium.

The Committee of Science will, at their meeting of the 24th prox., take into consideration the distribution of the balance of the Parliamentary grant for scientific purposes.



## NOTES OF WORKS.

The Ennis Town Commissioners require tenders for the construction of water works, according to plans by Mr. F. O'Connor, C.E. [See advertisement.]

The Corporation have decided upon accepting the tender of the Improved Wood Paving Company for paving a portion of Great Britain-street, at the Rotunda Hospital.

The shop and premises No. 13 Grafton-street are undergoing considerable alteration and improvement, including a new shop front, to render them suitable for Mr. Alexander Ogilvy's business. The work is being carried out by Mr. J. Bain, builder, from the drawings and under the direction of Messrs. McCurdy and Mitchell, architects.

The old-established premises in Capel-street known as Fergus Farrell and Son's seed warehouse have been altered and improved. They are now occupied by Messrs. W. Tait and Co., who have carried on business in the same line for some years in the above street. The patrons of the old firm will, we are sure, have their wants supplied by W. T. and Co., who devote personal attention to their business.

## HOME AND FOREIGN NOTES.

"AN ILLUSTRIOUS VISITOR."—General Grant, the Ex-President of the United States, has, since our last issue, visited this country, paying a round of visits to several of our provincial towns. In Dublin he was suitably entertained by the Corporation, and had the freedom of the city conferred upon him. The authorities of other towns have also feted the distinguished American General. He visited during his stay several public institutions and works and improvements in progress.

THE MESSRS. GUINNESS AND THEIR WORKMEN.—It is stated that Mr. Edward Cecil Guinness, the present chief of the great brewery firm of this city, has made a substantial increase in the wages of the labourers in the service of this establishment. The act is worthy of extension and imitation. We may add here that the Messrs. Guinness, from the nature of their trade and its constant enlargement, are always enabled to give a large amount of employment to workmen of the building and kindred trades in addition to their own, and a considerable number of miscellaneous operatives.

KERR'S PATENTS.—The object of a newly-formed company is to acquire the patent rights and *brevets d'invention* of the late William Henry Kerr, relating to improvements in the manufacture of porcelain and pottery. The invention consists mainly in separately calcining the materials used in the manufacture of porcelain and pottery in ordinary furnaces previous to their being mixed and moulded, by which process the expense of firing materials in the glost oven is saved, and the use of glaze entirely superseded, which, it is alleged, will enable manufacturers to produce porcelain of equal quality to that now in use at 30 to 50 per cent. below the present cost of production. A result of the said invention is that porcelain can be produced non-porous and absolutely impervious to wet, and consequently telegraph insulators can be manufactured greatly superior, and at a much cheaper rate, than those now in use. The company has been registered with a capital of £7,200.

THE ELECTRIC LIGHT.—The theory of the electric light forms the subject of an interesting and important paper by Mr. W. H. Preece, the electrician of the General Post Office, which appears in the *Philosophical Magazine* for the current month. Mr. Preece points out that the theory of the electric light cannot be brought absolutely within the domain of quantitative mathematics, for the reason that we do not yet know the exact relationship existing between the production of heat and the emission of light with a given current. We do, however, know sufficient to predict that what is true for the production of heat is equally true for the production of light beyond certain limits. He shows that the full effect of a current can only be obtained by one lamp on a short circuit, and that when we add to the lamp by inserting more of them on the same circuit so that the current is subdivided, the light emitted by each lamp is diminished in the one case by the square, and in the other case by the cube, of the number inserted. With dynamo-electric machines there is a limit which has to be reached before this law begins to act. With the Wallace Farmer

machine this limit appears to be six lamps; in the Gramme machine and Jablockhoff candle it is five. The Gramme machine in use on the Thames Embankment is practically four distinct machines. It is this partial success in multiplying the light that in Mr. Preece's opinion has led so many sanguine experimenters to anticipate the ultimate possibility of its extensive subdivision—a possibility which he demonstrates in his paper to be hopeless, and which experiment has hitherto proved fallacious.

THE MISUSE OF MACADAM.—The disreputable commercial policy that cares nothing for soundness of work and everything for largeness of profits is, we learn, responsible for the present condition of many London thoroughfares. Mr. Flowers, the well-known magistrate, has written a letter pointing out that our macadamised roads are as a rule macadamised only in name. The plan of the great road-maker who gave his name to a system now defaced by gross abuses depended for its success on the stones employed being small and equal in size. The result was a road that, except where incessant and gigantic traffic overtaxed its powers of resistance, kept even and wore well. These roads have disappeared almost as utterly as the rings through which Macadam in his lifetime caused the "metal" he employed to be passed. Contractors of the modern type look only to the fact that an increase in the size of the stones means a diminution of the amount paid for labour, and a consequent increase of profits. They construct their roads, therefore, with material carelessly broken, and rely on the steam-roller to give the surface a level look. The causeway thus produced will no more "bind" than a Russian diplomatic promise. Rain washes out the dust and gravel that fill up the spaces between the stones, wheels plough up the stones themselves, and in a very few weeks an expensive slough is forthcoming, over which ratepayers and vestries despond. Macadam, thus fallen from the durability that once belonged to it, bids fair to be gradually improved from the face of the metropolis. In ten or fifteen years the traffic of all thoroughfares of importance will probably pass over roadways formed either of asphalt or wood. As yet, however, the relative value of these materials is a question on which metropolitan vestries seem hopelessly at variance.—*Social Notes.*

INDUSTRIAL MUSEUM IN NAPLES.—Much has been said about the formation of an Industrial Museum in Naples, and, indeed, the Government has already taken the initiative. "From want of means," says the *Commendatore Salazar*, "Italy cannot create a museum in the form of that of Kensington, but it will endeavour by a course of instruction to combine the Institution of Fine Arts with the Technical Institute, so that they may aid in the improvement of the productions of our manufacturing classes by the use of science and art." In the Industrial Museum which it is now proposed to form in Naples, the technical section, together with schools of application, will be annexed to the Institution of Fine Arts, for the benefit of those who have need of chemistry for the knowledge and application of colours, as also for the students in the College of Music, for whom natural philosophy (*Fisica*) is necessary, together with that scientific and literary instruction required by the times. "We desire to give," says one of the commission for forming the industrial museum, "the example of an industrial artistic museum, with the view of improving the labour of various classes of operatives who at present struggle with misery on account of the slight demand for their productions by national and foreign commerce. . . . As to mechanics and other things necessary to general industry, the Government has no intention of dissolving the technical institutions,—it will aim simply at modifying them in everything which has relation to art, up to the present time strangely applied." Last year I reported the discovery of a necropolis on the estate of Count Spinelli in Acerra. Excavations have been continued since then at intervals, and lately some objects of great value have been discovered. The distinguished antiquary Mommson is expected shortly in Naples expressly to examine them. The objects referred to consist principally of glass.—*H. W., in Athenæum.*

DESTRUCTION OF THE BIRMINGHAM LIBRARY.—The disastrous fire of Saturday resulted in the destruction of the most valuable portions of the Central Library. The reference library, the Shakespeare library, and the Cervantes collection are almost, if not entirely, destroyed. Many of the books are irreplaceable, as they were the only copies in existence. A man, who was engaged in thawing gaspipes, had made a small hole in a pipe, and had ignited the gas coming through it, the flame thus produced being about two inches high. Unhappily, a piece of shaving, which was blown through the flame, caught fire, and fell amongst some other shavings. The man saw the danger,

and endeavoured to extinguish the fire. The flames, however, spread with great rapidity. An alarm was raised, and the readers at once rushed out of the building. The Shakespeare library contained 8,000 volumes, and it is estimated that there were 80,000 books in the whole library. The Midland Institute, which adjoins the free library, was in great danger, but the communication was fortunately cut. There was considerable delay in throwing on water, owing to the pipes being frozen. The reference library was at top of the building, and from the first it was evident it could not be saved; all efforts were therefore directed to the protection of the lending library, but the flames spread so rapidly that that room was also soon burnt out. Steam fire engines were brought into requisition, and though water was thrown on the fire for hours, no check to it was apparent. The interior of the building was entirely destroyed; only the walls are left standing. The contents of the art gallery had fortunately been removed a few months since for the purpose of allowing some alterations to be made in the building. Another account says: All the rare Birmingham pamphlets and tracts which have from time to time been presented to the town by generous benefactors, or purchased, in order to make the collection of local literature as complete as possible, have been destroyed. The Shakespeare library was the most complete in existence, and consisted largely of editions of the great poet's works, of pamphlets, magazine articles, and other matter collected from time to time. To this library the late Mr. Charles Knight gave more than 100 volumes of rare and important works used by him in the preparation of his edition, and the library has also had contributions from all parts of the world, and in numerous languages. The Staunton collection, for which the subscribers to the institute recently gave £3,000, and which was the largest collection extant of original documents relating to the history of Warwickshire, has been wholly burnt up. The Knowle Guild Book in MS. is another of the priceless treasures that have been destroyed. The prints, drawings, and engravings collected by the Staunton families for several generations, and illustrating mediæval and other buildings which have themselves long ago perished or have been removed, are also lost. The Cervantes collection, which comprised almost every known edition of the author's works, and which occupied the lifetime of Mr. Wm. Bragge, has also perished. The amount of insurance is £24,000—viz., £12,000 for the building and £12,000 for the books; but the total loss is estimated at £35,000.

## TO CORRESPONDENTS.

CIVIL SERVICE.—Elsewhere in our columns will be found some facts in connection with Civil Service organisations, co-operative appointments, and other matters appertaining to the Service.

FLimsy FURNITURE.—We will shortly have something more to say upon this subject—its abuses and bearing upon modern architecture.

A BUILDER.—In the northern suburbs we think you would find a suitable area.

"AN IMPROVER."—Of course it could be formed out of a block of stone as well as wood, but it would need a different baluster support. The supporting work could be pierced so as to form combinations of tracery.

B. D.—We have not seen the report lately issued by the City Engineer on the state of public works under the control of the Corporation.

RECEIVED.—W. C.—C. E.—J. B.—Citizen.—An Artisan (subject referred to)—M. A.—B. C.—R. A., &c.

## NOTICE.

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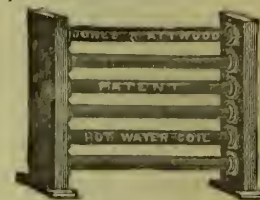
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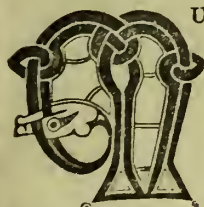
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## THE IRISH BUILDER.

VOL. XXI.—No. 459.

THE GROWTH OF  
TECHNICAL EDUCATION.

UCH has been written within the last ten years on the important subject of industrial and technical education, and its necessity in the interests of the artisan classes, as also in the development of various manufactures.

Foreign competition has of late been opening the eyes and sharpening the wits of Englishmen, and more energetic efforts are being made for creating facilities for the imparting of scientific knowledge. Some Continental nations have, however, got the start of England, and the United States is in many branches of trade fastly treading on the heels of the mother country, and threatening to push her rudely aside.

Industrial education has been more or less advancing in the British Islands for the last half-century—indeed since the era of the first railway in England scientific knowledge has been forging ahead, though its range has been limited. The rise and growth of cheap literature in the chief cities of the three kingdoms has contributed much to the spread of practical and useful information, and as time advanced a more powerful impetus was given to its extension by the removal of taxes upon knowledge, which existed in the shape of paper, advertisement, and stamp duties in connection with the publishing trade. Many people who now take credit for their advocacy of technical information ignore or altogether forget the pioneer efforts of their predecessors. Had not the ground been to a large extent prepared for the seed, the present call for technical schools, universities, and artisans' institutes would not be responded

to. It takes a long time and much persistent preaching before the minds of either the governing or working classes are leavened and a really practical movement is made in the right direction.

Let us glance back for the space of fifty years or so, and see and mark a few earnest pioneers, journalistic and otherwise, who have aided nobly in the spread of useful knowledge. The writers or authors of big and expensive treatises on science and art subjects may be omitted in our view, as their works were not designed to meet the wants of the masses, and they were not otherwise available by working men, or suitable, if available, from their style.

Among the first publications of a cheap and serviceable kind, devoting space to the discussion of subjects in the fields of science and the arts, was the *Penny Magazine*, issued by the Society for the Diffusion of Useful Knowledge in London. The late Charles Knight, in the issue of his *Penny Magazine* and *Penny Cyclopædia*, and other cheap works, contributed powerfully in London and in England generally to instruct the working classes by placing within their means publications well suited for the ends in view of educating the people. The effort made in London was immediately imitated in Edinburgh by William Chambers, who about the year 1832 issued the now historic *Chambers's Edinburgh Journal*, which is still existing and in a flourishing state. Anon the brothers Chambers, William and Robert, work conjointly on the *Journal*, and projected and carried on *Chambers's Information for the People*—a publication which, while it continued, rendered eminent service to the working classes. The subsequent publications—books and tracts of an educational and useful character—by the Messrs. Chambers were numerous.

In the same year that the *Edinburgh Journal* was issued the *Dublin Penny Journal* of John S. Folds was started, having for its contributors a number of writers in fields industrial and mechanical, as well as in history, biography, antiquities, story, and poetry. The late George Petrie, our distinguished antiquary and artist, was its editor for a while, and he enriched its pages with a variety of contributions of a most useful and general character.

The *Penny Magazine* of London, the *Edinburgh Journal*, and the *Dublin Penny Journal*, were in themselves a host, and as pioneer labourers in the cause of technical knowledge, their work should never be ignored or forgotten. The *Dublin periodical* ran to four volumes only, but *Chambers's Edinburgh Journal* not only outlived the first London cheap periodicals, but has outlived during its career numerous other publications started in imitation of itself, and designed for similar ends. The *Dublin Penny Journal* had a co-labourer for a short time—the *Dublin Penny Magazine*, but it reached only one volume. Four years after the cessation of the *Dublin Penny Journal*, in 1840, the *Irish Penny Journal* was started, having for its editor Petrie, and a number of his co-workers on the former *Penny Journal*. We do not intend to enumerate now other subsequent literary ventures in London, Edinburgh, or Dublin, but we may point to the foregoing periodicals as distinguished pioneers in the cause of industrial as well as entertaining knowledge.

It will not be amiss to give Irish readers

of to-day a few extracts from the writings of men who nigh half a century ago laboured earnestly in the cause of technical and useful knowledge. Some of these men very often preached to dull ears, but they spoke plainly, sensibly, and forcibly, aye, and to the point. In the first-named Dublin periodical, among other practical articles, we find one headed "The Prospects and Duty of Irishmen in Reference to the Acquisition of Knowledge":—

"What have carpenters or masons to do with the classics? Teach them mechanical philosophy—teach them how to estimate the strength of timber, of walls, of arches—show them that there are certain fixed principles on which they can go to work—and thus give them the power of rising in their own professions. Why is there such a reproach yet lying upon the handiwork and practical ingenuity of Irishmen? How comes it that if an intelligent engineer or practical chemist, or an experienced agriculturist, are wanted for responsible situations, they are rarely to be found amongst the bulk of the people, and have, consequently, to be imported? Take Dublin, for instance, and we will venture fearlessly to assert that nine-tenths of the young men who belong to the mechanical departments are ignorant of the simplest details of science. Ask any one of them to give you a rude idea of the working of the steam engine—of the nature of colours—of the refraction of light—of the laws which regulate the motions of fluids—and the truth of the assertion will be borne out. There are intelligent mechanics in Dublin, and we are proud to acknowledge it; but they are comparatively few in number. We wish to stimulate their brethren to imitate their laudable example, to seize on the opportunities which the diffusion of useful knowledge now present, and, by becoming acquainted with the principles of science, become more skillful, expert, and useful in their different arts, and, instead of working by rote, learn to work by rule, and thus so elevate the character of their respective professions, that journeyman smiths, carpenters, masons, dyers, bleachers, &c., may no longer be mere agents in the hands of builders, engineers, and chemists, but intelligent workmen who comprehend what they are about, and feel an interest in having it creditably finished."

Now the above excellent advice was given in 1833, and though a great advance has been made since then, much of what has been stated is applicable still in this country. We had no mechanics' institutes in this country till after the above date. As far back as the first year of the present century, Dr. Birkbeck, with whom originated the idea of these institutes, delivered a course of lectures on natural philosophy to the working men in Glasgow, but it was not until twenty years after, the first of these institutes was established. In 1823, Dr. Birkbeck presided at a meeting convened for the purpose of establishing the London Mechanics' Institute, and towards the close of the same year he was elected president of that body, in which office he continued till his death in 1841. The Dublin Mechanics' Institute, we believe, dates from 1837, and during the first twenty years of its career numerous lectures of a practically useful kind were delivered within its walls. A number of classes were also established from time to time for teaching architectural and mechanical drawing, French, English, and mathematics, &c., which were continued for some years with more or less success. Though these classes (looking back from the present time) have not for a number of years been kept intact through a variety of alleged causes, yet in the earlier years of the Dublin Mechanics' Institute the lectures and classes were the means of attracting a large number of young men, who, of course, more or less profited according to their taste. In this light the Mechanics' Institute was for some years an auxiliary in the cause of technical education, but our mechanics' insti-



tutes in this country lacked the vigour and facilities evidenced in many kindred institutes in the sister kingdom. It has been stated with some degree of truth that as a general rule working men do not care to attend courses of lectures on any subject, especially on one that they cannot turn immediately to practical account. It has been found that their interest flags on the subject after two or three lectures. A good deal, however, depends upon the tact and talent of the lecturer, and his skill in adapting his subject to the comprehension of his audience. Some young men are more advanced in knowledge, owing to self-culture, than others; and a lecture of a certain kind may be more understood and appreciated by one of this class than by others to whom a more rudimentary method of instruction would be necessary. The best way would be to take a special subject and exhaust it in two or three lectures, and adapt it as far as possible to the intelligence of the audience likely to assemble, or invited to assemble. Many mechanics' institutes of late years have been obliged to dissolve, and others have been obliged more or less to modify their original intentions to enable them to continue. The publication of a number of cheap educational and scientific treatises and the issue of professional periodicals have also within late years done much towards the spread of technical education, and our schools of art—although they are not availed of to the extent which they ought, by the artisan classes—have also been largely instrumental in imparting sound and useful technical instruction. In the midst, however, of present facilities we can usefully look on the past and trace the growth of that technical knowledge, the acquisition of which is now so loudly advocated. In doing this let us be honourable and conscientious, and deal fairly by our predecessors who have laboured zealously in sterile and rugged fields to pave the way to the present more level paths to knowledge.

In Dublin we should never forget the efforts for long years of the old Dublin Society, which, in its own way, achieved much good with little encouragement to cheer its work for years. In old times its School of Art might be deficient, and, as a fact, was deficient in many ways, nevertheless it turned out good draughtsmen and artists, and gave an impulse to the spread of useful knowledge. Reverting to the pioneer literature from which we gave the extract above quoted, we find an article headed "What is a Machine?" When this article was penned there was a great outcry against the introduction of machinery, and fierce and often sanguinary were the battles between masters and workmen, yet in Dublin, nigh half a century ago, the writer of the article we have alluded to had the courage to address his countrymen thus in a popular periodical largely patronised by the artisan classes:—

"Answer this question—Whether has machinery destroyed or created employment? It has done evil, certainly; does that evil overbalance the good? Many an ungrateful fellow, while smoking his farthing pipe, exclaims against machinery. Does he know that without a mould, a machine for copying pipes, it would cost him a shilling? What a comfortable thing it is to have glass in our windows? What a still more comfortable thing it is to be enabled by a mirror to survey our outward man, to have a glance at ourselves. And what an agreeable thing it is to have a cut-glass decanter on the table! Machinery, as the term is commonly employed, is certainly not much used in the manufacture of glass, yet without the subdivision of labour which machinery introduces, without blow-pipes and wheels, without blasts and furnaces, we (the working classes

at least) would not have glass in our windows, far less the tell-tale mirror and the sparkling decanter."

And further on our pioneer technical educator pertinently points out:—

"A knife would do very laboriously what is done very quickly by a hatchet. The labour of using a hatchet, and the material which it wastes, are saved twenty times over by his saw. Every boy of mechanical ingenuity has tried with the knife to make a boat. With his knife it is the work of weeks; give him a chisel and a gouge, and a vice to hold his wood, and the little boat is the work of a day. The delicate operations of carpentry could not by any possibility be performed by a knife or a hatchet or a saw. But give the skilful workman planes, rebate planes, filisters, bevellers, and centre-bits, and how beautifully is that work performed, which, without them, would be rough and imperfect."

Much more, and to the purpose, does the same writer say; but it is unnecessary to quote, as the advantage of labour-saving machinery is now all but universally acknowledged. Here, however, is a parting paragraph from the practical essayist of seven and forty years ago:—

"If machinery, therefore, is not to be introduced into Ireland, it is equivalent to saying that we must still perform by brute force any operations our rude state will require; and to be consistent, and make a fair beginning, we should break up our steamboats, demolish our windmills, fling away our knives and forks, smash our crockery, burn our calicoes, and creep, like Diogenes, into our tubs, and survey from them the wilderness which our folly has created."

Excellently put; and though Ireland, unlike the sister kingdom, did not, owing to certain obvious and depressing interests, take quickly to machinery and manufactures, she kept moving a little in the right direction. Within a year or two after the articles from which the above extracts were taken, the first railway in Ireland was opened, and steam-press printing had commenced in Dublin. More remarkable still, the journals in which the articles we quoted from appeared, with many other kindred ones, were, in a volume or two later, the first steam-printed journals in Ireland. The advocate for the extension of useful knowledge; the pioneer, technical instructor, and educator, did not preach in vain.

#### LOCK-MAKING AND HOUSE-BREAKING, OR BURGLARS VERSUS BUILDERS.

IN our notice of American ironmongery articles on the 1st ult. we gave an extract from a professional contemporary, pointing out the superiority and cheapness of a number of the imported goods compared with some of those of English manufacture. In the matter of locks, we instanced a class of goods now thrown upon the market, of a most inferior and worthless description. Builders' ironmongery includes a great variety of articles besides locks, and a very large amount of these inferior "cheap and nasty" articles are used by the builders of speculative houses. An article may be moderately cheap and yet be serviceable, and it is said that the American manufacturers are turning out cheap, durable, and well-finished articles of building and general ironmongery, which are now extensively imported, and are gradually displacing English manufacture. There is, without doubt, much truth in these statements; nevertheless there are a number of old-established English firms who have a reputation to sustain, and do sustain it, by manufacturing undeniably good articles in all branches of the trade they carry on.

Mr. Hill, a London merchant, who deals extensively in locks, complains publicly of

the inferiority of some of the English-manufactured goods, and states that he was compelled to take from America his chief supply. His words are: "I was driven there by the inferiority and high prices of English workmanship, and the unwillingness of the masters to entertain my ideas of improvement." He has got the Americans to improve, he says, upon the old English patterns, so that his locks may be termed "Anglo-American." Mr. Hill, according to his own statement, is not exactly a manufacturer, though he has locks of his own patterns exclusively made for him. He still buys a little from Wolverhampton and Willenhall, but the great bulk of his stock is from America. Messrs. Chubb and Son, of London, a house celebrated for its locks, keys, and safes, &c., are certainly entitled to be heard upon the subject of lock manufacture, and they traverse Mr. Hill's statements. It is only fair that full publicity should be given to their account of the trade. They say:—

"It is incorrectly assumed, both by Colonel Wrottesley and Mr. Hill, that all English locks are of one class, consisting 'of a number of small parts exact counterparts of each other'; but as Mr. Hill owns he is not a manufacturer, preferring 'to be a merchant only,' it may be necessary to inform him that in a superior quality of lock it is not desired to make a large number precisely alike, but rather to produce the greatest possible variety of combinations with different keys. In order to effect this, a certain amount of skilled workmanship has to supplement the products of machinery, and will always continue to do so. We were acquainted with the workmanship and finish of American locks long before contractors were tempted across the water by large discounts; and while readily acknowledging the general utility and neatness of these goods, we maintain they show no improvements affecting real security superior to those effected in this country. Scarcely a year passes in our own works without either master or men adopting some improved alteration of manufacture, and we know of numerous other cases where special machines have been made for the trade. But besides all this, Mr. Hill, in his zeal for his new friends, overstates his case against the British workman. We have employed hundreds of men at our Wolverhampton factory during the last fifty years, and have no hesitation in saying that they have been as sober, saving, and honest in their work as any similar number of Americans."

This is certainly saying a good word for a number of British workmen, but the fact remains that a large amount of inferior locks are still thrown on the market by a class of manufacturers who drive a trade in a description of locks and other wares that would not be engaged in by the Messrs. Chubb. Respecting the manufacture of American locks and some descriptions of English locks, it may be noted that machinery is extensively used, and, of course, thousands upon thousands of locks are turned out with arrangements all counterparts of each other. Each lock might *per se* be an ordinary well-made and put-together lock, yet as regards safety their value would not be high. It is the quantity that can be turned out by the application of machinery and all of one pattern that enables the manufacturer to sell them cheap, but where hand labour is extensively used to effect a difference in the arrangement of the parts, of course a higher price has to be charged. In most of our present middle-class domestic residences, the locks put on by the builders are very often of the one pattern; and it will be found very often, too, that the key of the locks on the parlour doors will open those on the drawing-room floor; and again some of the keys of your next-door neighbours' locks will be found to answer yours. Indeed if one were to make an experiment by trying the keys belonging to number of houses in the



same row, built by the same builder, it is not unlikely it would be found that scores of the locks and keys are exact counterparts of each other, and where difference exists it would be seen on examination to be very trifling.

Many good and serviceable locks are constantly rendered useless by jobbing locksmiths, who are called in when a key has been broken or lost. Some jobbing locksmiths are mere handy men who take to the trade of lock-repairing and bell-hanging. Repair many of them do not, they are rather breakers than repairers, for if they have an old key on their bunch which enters the key-hole, they will not be long in making it turn in a good lock by knocking out one or more wards or parts. This process, which is constantly performed by "handy men," is lock-mending with a vengeance. Numerous are the good locks destroyed by jobbing locksmiths, who will not devote the time necessary to file a blank form to fit into the wards of the lock requiring a new key. In the majority of town and suburban dwellings of late years the locks in themselves afford little protection against burglarious attempts,—indeed your professional burglar and housebreaker does not care three brass pins whether the lock be good or bad.

Our hall-doors cannot now compare either in thickness or good make with those made half a century ago. Our old-fashioned half-doors were 3 in., or seldom under 2½ in. thick, and were often diagonally sheeted with tongued or rebated boarding on the inside. Indeed in many instances the sheeting was sheet iron, and window-shutters and kitchen and back doors were treated similarly. Now we have in our ordinary class of dwellings hall-doors 1½ in. thick, and sometimes less. Thick raised work panels have disappeared, and their place is supplied by panels about ½ in. or ¾ in. in thickness. In most of our new suburban dwellings the upper panels are no longer of wood but of glass, and a night lift shutter is put on inside; very often, however, this shutter is not put up by servants at night. Whether or no, very little protection is afforded by our present made hall or other outside doors.

It is very little use putting a good lock on a weak and flimsy door. The burglar's "jemmy," once inserted between the face of the door and the jamb, makes short work of modern locks, bolts, and hinges. If the lock side of the door resists through the combination of bolts and chains, the hinge side is forced by the hinges being "prised," or wrenched off, or broken. Failing here, the burglar can apply his brace and centre-bit or large gimlet to the thin bottom panel, making a hole for the insertion of a fine-pointed saw. The panel once cut round, the burglar or his accomplished son creeps through on all-fours. Of course if the police do their duty at night in our streets, lock-breaking or burglary will not often occur; but in suburban districts and country places the burglar may pretty often do what he likes.

The usual run of sash-fasteners on our windows afford no protection against entry, as they are easily pushed back by the insertion of a thin blade of iron or piece of wire. When strongly-made shutters were used and affixed to window-frames, and well barred at night, there were fewer entries by windows on the part of burglars; but modern fashion has of late years been doing away with shutters and their usual trimmings, and sub-

stituting instead Venetian blinds, which, though ornamental, afford no protection to our windows. In fact the most of our ordinary building ironmongery is very indifferent, and it may be broadly and plainly stated that the door and window furniture now used extensively in speculative builders' houses is bad in material, bad in finish, and generally of little worth. Like the majority of the houses it is used in, this ironmongery was made to sell. A reform in building ironmongery is needed, but a house-building reform should precede it; our houses should be made more burglar-proof as well as more healthy.

#### NEW HIGH ALTAR, CHURCH OF SS. MICHAEL AND JOHN, LOWER EXCHANGE-STREET.

THE R.C. Church of SS. Michael and John, Lower Exchange-street, occupies the site of the once famous Smock-alley theatre. In this number we illustrate the new high altar which has just been completed for the Rev. N. Walsh, P.P., from designs by Mr. J. L. Robinson, 198 Great Brunswick-street, who has also designed the two side altars. The work was executed by Mrs. O'Callaghan, 4 Bachelor's-walk.

#### THE CENTENARY OF MOORE.

WITHIN the last few days preliminary steps have been taken with a view of commemorating the Centenary of our national poet. We hope the movement will be taken up in the proper spirit, and kept clear of mere party purposes. Apart from politics and religion, Moore claims the recognition of Irishmen, irrespective of sect and party. It is now several years since the O'Connell Centenary was first suggested in these pages. On the same date (September 1, 1871) the following words appeared in the IRISH BUILDER in view of the Centenary of Moore:—

"Thomas Moore is a name that would occur to many in this island as one that might be fittingly honoured by a centenary celebration, but we shall have to wait until 1879 before such a celebration could take place. Moore is certainly our national bard—a name as dear to us as that of Shakespeare to England, or Scott or Burns to Scotland. There is no one, be he native of where he may, or no matter what may be his religion, could object to pay his homage to Thomas Moore. His genius was universal, his melodies could touch and soften the most obdurate heart; and, let the traveller go where he will in either hemisphere, snatches of the songs and strains of the music of Moore will fall upon his ears, waken up his home recollections, and send a thrill through his soul so exquisite that language must fail to describe it. Yes, Thomas Moore deserves a centenary celebration also, and no difficulty will exist when the hour arrives of honouring him."

It is upwards of seven years since the above was written, and the idea is about being embodied. In the month of May next a hundred years will have passed since the great poet was born, and it is nigh twenty-seven years since his death. The city of his birth has raised a statue to his memory, but unfortunately it is but a poor reflex of the poet. The house where Moore was born still stands, and it is often visited by "illustrious strangers" from abroad. The street of the poet's youth is sadly decayed since the days when Master Tom in his thirteenth or fourteenth year penned those juvenile verses that appeared in the *Anthologia Hibernica*, including one to his dear schoolmaster, Samuel Whyte, of Grafton-street, a poet too, as well as his pupil. We sincerely trust that the Moore Centenary will not be utilised for any

sinister purposes, and the celebration will be made broadly and fully a truly national one, in which all parties may unite—a fitting tribute to the memory and genius of our native poet, and an honour to his country.

#### THE DUBLIN MECHANICS' INSTITUTE.

THE directors of the Institute, in their forty-fourth annual report, say that their last year was the most successful one in the life of the Institute since 1855. They have wiped off all their old debts, and written off for good all their doubtful and bad ones, and are enabled to commence this year with a small balance in hand. They review some of the retarding causes to the prosperity of the Institute, and say that with the changed aspect of the time they are endeavouring to provide new and growing wants. They invite the adhesion in stronger numbers of the classes for whom the Institute was designed, and they congratulate themselves that there is at least one Institute in Dublin from which the demon of faction has been entirely exorcised.

We find by the report that there are 78 newspapers and periodicals provided for the readers, and that the visitors to the reading-room during the late year (independent of the members) were 33,184. The number of new members during the year was 439, renewals 340, and those who have ceased to pay their subscriptions 389. During the year 1877, 300 volumes were added to the library, and last year 300 more, the circulation of the books for the year being 9,000.

The classes are not as perfect as of old; the French, English, and mathematical classes are, however, continued. The Irish class, for the teaching of the mother tongue, has, we are glad to hear, been successful. The directors regret their inability to procure a teacher for the science classes, possessing the necessary qualification, but they trust that during the ensuing year they may succeed in doing so. We would like to see the science classes preserved and kept in active operation, for the interests of technical education in behalf of our artisans and working men demand the provision of such classes. Freehand, mechanical, and architectural drawing classes should be always kept in working order in the Institute. Amusements have been provided during the year in the Theatre of the Institute, and the class for dancing appears to be gaining an increase of members.

Elsewhere in our present issue, on the subject of Technical Education we have alluded to mechanics' institutes in general and the Dublin one in particular. We would like to see the one in our midst more prosperous, and the artisans of our city taking more interest in its welfare. A combined effort should be made by all to render the Mechanics' Institute a thoroughly strong and efficient body. By an increase of numbers the classes can be strengthened; but it should be the object of the directors and friends of the Institute to provide for acknowledged wants, and by doing so inducements would exist, bringing an accession of new members. By all means let amusements of a proper kind be provided, but let not science and art be neglected.

**COLERAINE MECHANICS' INSTITUTE.**—From the annual report of this institute we learn that the past year had been a very prosperous one, the income being £54 4s. 3½d.,—an increase of £17 on 1877. The expenditure had also increased since the preceding year, but that was owing to nearly £9 10s. having been expended in purchasing books, and in repairs to the library and news-rooms, which amount would not again be required for similar purposes for some time to come. There was, however, at the end of the year, a balance to their credit of £2 14s. 3½d. The committee expressed a hope that the institute would still continue to progress, and add to the moral and social advancement of the young men of Coleraine.



## CORRESPONDENCE.

"SANITARY CERTIFICATES, AND  
SANITARY INSURANCE."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In reply to the anonymous letter of "An Architect" in your last issue, asking (not very courteously) by what course of training I have attained a position to issue sanitary certificates of dwellings, will you permit me to inform him that my course of training has been everyday actual practice in sanitary work for twenty years. The experience thus gained, combined with careful observation of the theories of eminent sanitary authorities, has enabled me to determine on the simple and perfect system which I adopt and require in my certified sanitary arrangements. Under this system I am able to guarantee that any dwelling to which it is applied is absolutely free from the entrance of dangerous sewer gases. I wish no one to accept my *ipse dixit*, but, on the contrary, provide a ready means for any person of common sense to satisfy himself of the utility of this sanitary system.

Whenever I have pointed out and explained my sanitary arrangements in any house to medical men, they have not objected to endorse my certificates, and I refer specially to medical sanitary officers. I can see no prospect of any difficulty arising on the subject; and so far from finding any trouble in getting architects of eminence to examine my work and endorse my certificates, I have been honoured by their highest approval, and am frequently consulted by leading architects on practical sanitary matters even in connection with their own dwellings.

My sanitary insurance system is intended to secure to householders that their sanitary arrangements when rendered safe may be maintained in that condition from year to year. Surely this is no time for unseemly contention over the work of sanitation, with the death-rate at its present alarming proportions, swelled by its fatal diseases attributed to defective sanitary arrangements. In my humble opinion it is the duty of every man to apply his knowledge to some useful end, and endeavour to remedy the terrible state of things by which we are surrounded, instead of wasting time by obstruction and frivolous objections.

WM. ROBT. MAGUIRE.

10 Dawson-street, Dublin,  
January 21, 1879.

P.S.—The "glass, frame, and parchment" which seems to trouble your correspondent, I can assure him, full of advantage, as it contains an accurate plan of the house drains and connections, for future reference, in addition to my sanitary certificate.

[Apart from the personal part of the above controversy, the subject of sanitary insurance is one that demands serious attention. The registration of all new houses may at no distant date be carried into effect. It has been more than once suggested, and in the interests of house-owners or intending occupiers, as also that of the public health, that it has become indispensably necessary that an efficient system of registration should be adopted, so that houses may be certified to possess all the requisites of sanitary architecture, which includes among other essentials good building and good drainage. We may allude to the subject more in detail on another occasion.—ED. I. B.]

## WORKMEN'S CLUBS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As our Lord Mayor has left this question over for a month, to be, meantime, discussed by the Press and other ordinary modes of inquiry, I suggest a few preliminary inquiries. At the root of the question lies a point apparently overlooked in all the meetings held—namely, what a club is. Is it to

be an institute like the Mechanics', or a club proper? If the former, I can understand all those suggestions of an educational character—library, &c.; if the latter, who ever heard of any fuss respecting books, &c., in the Kildare-street, the University, the Friendly Brothers, or the United Service Clubs? Again, we may ask what is a club but a co-operative system of a domestic character—namely, composed of gentlemen who have no city homes, who meet together according to social ties, vote one another into companionship and fellowship, eat, drink, sleep, and converse, read newspapers, gossip and discuss all the politics and current events passing, each club forming one set of thinkers, such as Liberal, Conservative, farming, medical, military, clerical? What clubs are existing for the shopkeepers and traders, and others? They are not required nor desirable. Why? Simply they would interfere with the claims of the domestic circle upon any right-minded and right-hearted citizen. Then, ask every trade society in their trade meetings—what club would suit your requirements? If, as a primary axiom, the motto be, "Where there is drink there is danger," and no public licence be either asked for nor granted, what becomes of the idea of a social club? but simply the old British workman's idea of a dry public-house, which is at present in Townsend-street open to all customers, but still is no club for that very reason. If, on the other hand, refreshments may be ordered without restriction, under clerical and philanthropic supervision, are the working men thereby one whit improved? Company, without any admission test, of a very miscellaneous character, both in morals and constitutional loyalty and politics, assemble, and combinations formed by the more skilled and crafty, spreading the moral malaria far and wide. If no polemics nor politics are admitted to be discussed, how are the minds of the working men to be enlarged and strengthened? It then reduces the place to a mere animal enjoyment affair, wasting time and money away from their families, and nursing hotbeds of all the vicious pleasures which fallen carnal nature revels in. Send round query papers to every trade society in Dublin on those points, and then judge how varied and complex will be the ideas entertained by the men themselves—hardly two men will thoroughly agree on all, and they will be solely moved by their previous educational bias and moral training.

A WORKING MAN.

THE MACHINERY OF GAS  
TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The Examiner of Private Bills in the House of Commons has rejected the Alliance Gas Company's Bill, the promoters not being able to prove that the road authorities had consented to the legalising of some of its provisions. As the gas company without such consent cannot promote a similar bill, a good opportunity will exist for the "Cork-hill Home Rulers" to abolish the department of public lighting, &c., by making a different contract with the gas company for the lighting, &c., of the public lamps, that will relieve the rate-payers of some of the burthen of taxation, and at once put an end to the disgraceful inefficiency and jobbing, in the working of, and mystification of, accounts in that department; a few illustrations of which I will now give. In doing so, I will not again notice the amount of money loss caused to the ratepayers by the deliberate neglect of the Corporation in not ascertaining the truth or falsehood of the repeated published accusations, that more powerful lights were emitted from the metered lamps and more gas burned to produce them, than were emitted from the dependant lamps in the last six months of 1874. During that period, that unequal lighting could have easily been seen, and an effort was made to direct the attention of the Police Commissioners to the fact. Neither will I speculate on the amount of money lost to the gas con-

sumers throughout the gas district, by that scandalous transaction, the payment by the Corporation, without inquiry or censure, of £123 17s. 9d. for the reverification &c. of the Dublin copies of the standard gas measures, which the Warden of Standards expected to find in such a condition that their reverification could be done without any expense whatever to the Corporation.

From the Corporation accounts it would appear that the lamp-lighters were able to receive wages for fifty-three weeks in each of the years ending 31st August 1873 and 1874. Also, for some years, the salaries of two persons, amounting (I have heard) to £182 per annum, regularly appeared in these accounts under the head of "Lamp-lighters' Wages," neither of whom ever lighted a public lamp in their lives, and whose united "honorariums" were nearly equal to the wages of five lamp-lighters. During the audit of the Corporation accounts for the year ending August, 1876, Mr. M'Evoy directed the auditor's attention to the fact, that the sum set down for lamp-lighters' wages, £1,181 4s. 6d., included the salary of the assistant in the gas-meter testing department, who did not light lamps at all. The auditor ordered that, that person's salary should in future appear in the Corporation accounts under its proper head, and in the abstract of these accounts for the year ending August, 1877, there appears an item of £52 for the wages of that assistant, but the lamp-lighters' wages and expenses for that year amounted to £1,188 7s., being an increase of £60 over the previous year, whatever was done with it.

Since 1872 the annual cost of the gas consumed in the public lamps has been withdrawn from the Corporation accounts, sums paid on account being substituted, and an inquirer is in consequence left in ignorance of the total cost of the public lighting per lamp. At the present time the gas company could afford to supply gas to the public lamps, light, extinguish, clean, and do everything necessary to keep them in proper order for £3 per lamp, about 10s. less than the present cost. For this sum the lamps could be left lighting every morning until the legitimate time for extinguishing them, which is over one hour later than the streets have for the past four years been left in total darkness. In addition to having the gas meter testing department placed under the control of the Board of Trade or the Board of Works, at the cost of the gas company, same as the inspection of gas has been since 1874, such an arrangement with the gas company for the public lighting would relieve the Corporation of any odium the errors or omissions of their officials might cast upon them, and decidedly the ratepayers and gas consumers would greatly benefit by any arrangement that would abolish that vicious humbug, the department of public lighting and gas meter inspection in the Dublin Corporation.

The notice of the amount of pressure on the gas supply has twice appeared in the Corporation reports on the illuminating power of the gas since the last publication of the IRISH BUILDER. As the Act of Parliament under the authority of which gas meters are proved to be correct, imperatively commands that the pressure on the gas at the time of testing a meter for errors shall be *five-tenths of an inch*, no consumer that would dispute doing so could be compelled to pay for a bulk of gas indicated by a meter as having passed through it under a pressure ranging from 1 to 3½ inches, for such indication could not be correct.—JAMES KIRBY.

30th January, 1879.

A CONVALESCENT HOME.—At a special meeting of the Public Health Committee of the Corporation yesterday, it was resolved to invite the heads of the several hospitals in Dublin to a conference on the subject of establishing a convalescent home.

BOILER EXPLOSION.—A boiler exploded yesterday at the works of Mr. J. Shaw, Shaw Hill Top, Birmingham. Five men were injured, three it is feared fatally.



## RAILWAY CONSTRUCTION IN NEW COUNTRIES.\*

It was observed that the development of new countries by means of railways was the most important function of colonial governments. In the case of the Australian colonies, especially in Victoria, there had been an unwillingness to take advantage of the experience and practice of older communities; and the railway policy had been the principal feature characterising opposing parties in the legislature. Prior to 1867, a gauge of 5 ft. 3 in. had been adopted in South Australia, the lines costing considerably more than £10,000 a-mile, and the permanent way being of a character entirely unsuited to the climate; but in that year, owing to popular agitation, a cheaper system was introduced. The existing gauge was extended, but of a much lighter type; and the 3 ft. 6 in. gauge was introduced for districts separated from the broad-gauge lines. An extension of the main line northwards from Adelaide for 70 miles on the broad gauge had cost £5,247 per mile. A description of this line, which was of an easy character, was given. The formation width in cuttings was 16 ft. 6 in., and in embankments 18 ft. The permanent way consisted of wrought-iron flat-footed rails, weighing 40 lbs. to the yard, spiked to red gum hardwood cross-sleepers. Stations occurred at intervals of about 7 miles. The fencing was composed of cast-iron straining-posts and five rows of galvanised strand wire. The rolling-stock was of the usual character. The present average speed of trains was 25 miles per hour. The bulk of the traffic from the interior consisted of wheat and wool. The total traffic, from the opening in 1870 to the close of 1877, had been 573,904 tons of goods, and 297,931 passengers. The wear of the rails, due to much higher rates of speed than had been contemplated, was then referred to. Other lines in South Australia of this character had been made and equipped at a cost varying from £5,000 to £6,000. Labourers' wages had been 8s. per day of eight hours, and masons, bricklayers, carpenters, and smiths, from 12s. to 13s. The comparative advantages and disadvantages of the broad and narrow gauges were then contrasted.

The character of the line on the 3 ft. 6 in. gauge, which had so far been definitely fixed upon as the type of all the pioneer northern lines of railway, was described at some length. The Port Augusta and Port Darwin Railway, to connect the Indian Ocean with the Southern Ocean, which would be about 2,000 miles in length, afforded a good example of that type. The estimate for the first length of 200 miles from Port Augusta, including station buildings, water supply, workshops, and rolling stock, was £1,008,500, or £5,042 per mile; but the terms on which some of the contracts had been let rendered it probable that the line would be constructed considerably under the official estimate. This portion of the line was described. The ruling gradients were 1 in 60, with curves having a minimum radius of 5 chains. The highest altitude attained above the sea was 1,322 ft. in the Flinders Range, 29 miles from Port Augusta. The whole of the country was held by pastoral and mineral lessees, and, excepting near Port Augusta, no land had to be purchased. Very little fencing was needed. The earthworks were generally of a light character. The formation width in cuttings was 12 ft. 6 in., and in embankments 14 ft. Considering the small rainfall (10 in. annually on the average) the bridges and culverts were numerous, there being 8,750 lineal feet of iron bridging, and 750 culverts of 10 ft. in diameter as a rule. The bridges had masonry abutments; the piers were formed of hollow cast-iron screw piles, and the superstructure of wrought-iron plate or lattice girders. The piles were filled with lime concrete; and for simplicity and economy, only 20, 40, and 60-ft. spans had been adopted. The author

was of opinion that these bridges were amongst the lightest and most economical ever constructed. The total weight of wrought-iron in a bridge of 60 ft. span, exclusive of the cross-head box girder, was 9 tons 12½ cwt. with plate girders, and 8 tons 2½ cwt. where lattice girders occurred. The cross-head girder came to 18½ cwt. Lime concrete had been largely and successfully substituted for masonry in the walls, arches, inverts, and wing-walls of culverts, the cost having been less than one-half the expense of corresponding culverts in masonry. The culverts were of two types, arched and open-topped. The proportions of the concrete were 1 part of fresh unslaked lime well ground, 2 parts of clean sharp sand, and 3 parts of gravel. The precautions necessary in building the culverts with concrete were detailed. The permanent way consisted of flat-footed rails of wrought iron, weighing 40 lbs. to the yard, spiked to Jarrah-Jarrah cross-sleepers, imported from Western Australia, spaced 2 ft. 9 in. apart from centre to centre, and having a layer of 6 in. of gravel ballast under the sleepers. The locomotives, which were supplied with a bogie arrangement, were constructed by Messrs. Beyer, Peacock and Co. The carriages were of the second class only. They were entered through doors at the ends. The seats were athwart the vehicle, with a central passage between them, and they could accommodate 30 passengers each. The roofs were double. The bodies of the carriages were of Australian timber, which, when seasoned, was but little influenced by extreme changes of temperature. The wheels were of wrought iron, the tires and axles of cast steel. The axle-boxes were Buntber's, and the stock was fitted with central buffers. The wagon stock was made up of low-sided, medium, and covered vans. Each truck was limited to carry a load of 6 tons. The ratios of tares and loads were, for the low-sided wagon, 1 to 2.105; medium wagon, 1 to 1.905; covered van, 1 to 1.714. Well equipped stations occurred at intervals of about 20 miles. The water-supply included the construction of large covered concrete underground tanks, each with a capacity for 600,000 gallons, with over-head tanks and steam pumps. The author finally reverted to the evils of the break of gauge. Queensland had adopted a gauge of 3 ft. 6 in.; New South Wales, a gauge of 4 ft. 8½ in.; Victoria, one of 5 ft. 3 in., and South Australia had gauges of both extremes.

## THE ROYAL DUBLIN SOCIETY.

THE monthly scientific meeting of this society was on Monday the 20th ult. The Physical and Experimental Science Section met in the Lecture Theatre, under the presidency of the EARL OF ROSSE, V.P., F.R.S.

Professor H. E. Roscoe, Ph.D., F.R.S., gave "An account of some Experiments on the supposed compound nature of the Elements." He said that the interest which at present attached to this subject was his excuse for bringing before them in a very brief and incomplete way some experiments which he had lately made with a view to examining the evidence on which the question rested. It was not necessary in a scientific society to dwell on the importance of the subject, which had been lately attacked by his friend Mr. Lockyer. They all felt indebted to him for his most valuable researches. He had hitherto chiefly confined his attention to the sun, but now he had come down to earth and endeavoured to prove that chemical elements heretofore supposed to be simple could be split up. The idea was no new one; it was one which almost all scientific chemists were prepared to accept, provided sufficient evidence could be given to support it. They had been looking out for this possible decomposition of the elements as an explanation of a phenomenon known for a long time, namely, the connection between the atomic weights of groups of elements. The paper read by Mr. Lockyer before the Royal Society of London had been

printed, so that all could make themselves acquainted with it. The evidence relied on by Mr. Lockyer was almost altogether spectroscopic, being derived from the spectra of elements, obtained at very high temperatures, his idea being that under very high temperatures, far transcending that of an ordinary furnace, and more nearly resembling temperatures supposed to exist in the sun and stars, and approximations to which could be made by electric means, elements could be split up. Mr. Lockyer relied on the concurrence in the spectra of different metals, of certain bright lines, as indicating the existence of some common basic body, as he termed it, in those metals. The question arose, however, whether those common lines might not be due to impurities. It was most difficult to obtain chemical substances in a pure condition, and the most delicate test of the existence of such impurities was furnished by spectroscopic analysis. Mr. Lockyer mentioned that the common lines were not due to impurities. Professor Roscoe then submitted some spectra of lead, thallium, and zinc, and said that the greatest care was necessary in the preparation of the bodies to be submitted to spectrum analysis, with a view to the determination of this question, otherwise any conclusions drawn from the coincidence of spectral lines as to the existence of a common basic material might be illusory. He by no means said that he considered all Mr. Lockyer's conclusions to be invalidated by the considerations to which he referred.

Professor Emerson Reynolds said the society were greatly indebted to Professor Roscoe for his communication. Chemists looked with interest to Mr. Lockyer's investigations, as leading to a new era in their science; but, judging from what Professor Roscoe had said, they were probably still a long way from the result aimed at by Mr. Lockyer. Still they should keep their minds open to the possibility of so-called elements turning out to be compounds. The subject merited their closest attention, and if they followed out the lines of work indicated by Professor Roscoe, they would doubtless ultimately arrive at a sound basis of fact.

Mr. Howard Grubb read a paper on "Improvements in the Stereoscope." After some remarks on the theory of the instrument and a description of some modifications which had been made in it of late years, he showed that, besides a number of minor defects, the two great ones which prevented the wider application of the form at present most used (Brewster's) were:—1st. The impossibility of increasing the size of the picture, &c.; 2nd. The impossibility of making an instrument that would be best for all persons, as various modifications were required to suit different individuals. He showed how these defects might be avoided in a new construction of instrument he had invented, in which the pictures were placed, not one beside the other, but one over the other; and of course the optical parts modified to suit these new conditions. The improvement seems to partly depend on the fact that while the human eyes have a great facility for altering the relative direction of their axes horizontally, they have no power whatever of producing any relative alteration vertically. Advantage has been taken of this fact. This instrument is available for any size of picture. Mr. Grubb explained another form of stereoscope especially adapted for transparencies. The observer stands before and looks into a box in which is placed a concave mirror, in the surface of which images of the two pictures are then superposed on one another, but so arranged that the observer sees one picture with the right and one with the left eye, the result being an exquisitely stereoscopic image of the object apparently suspended in mid air.

A discussion ensued, in which the chairman, Mr. G. J. Stoney, and others took part.

Mr. R. J. Moss made a communication "On an Improved Method for determining the Gases dissolved in Water."

Mr. G. J. Stoney gave a report "On recent

\* By Mr. R. C. Patterson, M. Inst. C.E. Read at meetings of the Institution of Civil Engineers, London, on the 14th and 21st ult.



Experiments in Electricity, made in England, France, and Sweden."

The Natural Science Section met in the Reading-room. Professor EDWARD HULL, M.A., F.R.S., in the chair.

The Rev. Dr. Haughton read a communication entitled "Geological Notes made during a walking tour in Devonshire in the summer of 1878." The tour was made by Dr. Haughton, in company with his son, during the summer holidays, and a survey was made by them of the geological strata between Okehampton and Barnstaple. Among other results of their investigations was the discovery of an important omission in the geological survey maps of Great Britain, in which no marking is made of a large limestone formation at Okehampton. This omission does not occur in some older maps, at the time of the publication of which in all probability this limestone was quarried, but these quarries have since been filled up, and a stone of superior quality is brought by rail from Plymouth.

Dr. W. Frazer read a communication "On a map showing the Island of Hy Brasil, by Tarrant, the geographer of Louis XIII." A volume of maps, dated 1634, made by this geographer, came into the hands recently of Dr. Frazer, and among them are two MS. maps, one of the French and English coast, the other of Ireland. In this latter is marked, off the west coast, the Island of Hy Brasil. Now, the work of Tarrant was singularly correct, as was shown by the fact that the Irish coast was delineated with a care and accuracy which were wanting in English maps published centuries later, and Dr. Frazer believed that there was actually a small island at one period corresponding with this marking in Tarrant's map, but that it had since subsided, and the existence of Hy Brasil was consequently not entirely to be disbelieved and that it was above the level of the sea at a very recent period.

Dr. Ferguson said, with reference to the accuracy of some of the French maps produced, that they were clearly tracings of still older maps at present in the Museum at Copenhagen.

#### PARTY-WALLS:

##### THE LAW AND THE PRACTICE.\*

THERE exists in London a long-established custom of building between adjoining houses, not two separate external walls,—one standing upon the ground of each owner,—but one wall, the centre of which is usually placed perpendicularly over the boundary-line of the two properties, which wall is known as a "party-wall." The obvious convenience of this arrangement, both as saving space and reducing the cost of building, has caused it to become general in places where land is valuable; it is therefore of importance that those who have to deal with such property should be acquainted with the laws relating to it, and with the difficulties most likely to be met with in the course of practice. Although the subject is not very simple, I hope to submit it in a shape that will lead to useful discussion.

In London the law in respect of party structures is contained in the Metropolitan Building Act, 1855, the provisions of which have been embodied in the local acts of some other towns. To this act I shall limit the subject; for where it is not in operation, the rights and duties of parties who are presumed to be tenants-in-common of a party-wall are not so much matters of general interest and importance as is the case where such walls are the usual mode of separating buildings from each other.

What is a party-wall? The act says, in the interpretation clause—" 'Party-wall' shall apply to every wall used, or built in order to be used, as a separation of any building from any other building, with a view to the same being occupied by different persons."

This is generally satisfactory, and a wall standing as the separation between the rooms of two houses may almost safely be considered to be a party-wall. But there are cases in which, on examining the construction and the elevations of two houses, A and B, it is clear that A has first been built as a distinct and complete house, and that B has afterwards been added, the wall in question having been made use of, perhaps surreptitiously, and the deeds relating to A may show that the ground upon which the whole wall stands was conveyed to the owner of it. I think that when this is clearly seen, the wall must be considered to be the external wall of the house A. The wall was certainly never built in order to be used as a separation of the two buildings, and the true boundary-line of A seems to be at the outer face of the wall, while the house B was wrongfully built without any external wall on that side. Although many persons differ from this view, I think that as the land on which the wall stands is wholly the property of the owner of A, the most that can be said is that the owner of B has acquired an easement over the wall to the extent to which it is used by him. The act goes on to say—" 'Party-structure' shall include party-walls, and also partitions, arches, floors, and other structures separating buildings, storeys, or rooms, which belong to different owners, or which are approached by distinct staircases or separate entrances from without."

The provisions, so far as they relate to party-walls, are of two classes; those which regulate the nature of the construction, and those which fix the rights and duties of the respective owners of a wall with respect to each other. Part II. of the act, which relates to dangerous structures, has also an important bearing on party-walls.

The first class includes such things as have to be done under the supervision of the district surveyor. With respect to them much misapprehension exists, but when carefully studied they become tolerably clear. I only propose, therefore, to bring them together in a form convenient for discussion, and such as will form an introduction to the much more troublesome and difficult class of provisions which relate to building and adjoining owners.

By section 27 of the act, every building must be separated from every adjoining building by two external walls or one party-wall; and under particular conditions of size and occupation, the other party structures above defined must be used.

By section 9, any "alteration, addition, or other work" which affects the construction of a party-wall is subject to the regulations of the act; section 10 provides that whenever more than one-half of an old building has been taken down every part of the remainder of it that is not in conformity with the act must be taken down; and section 11 provides that whenever as much as one-half of any timber or other partition not in conformity with the act and separating old buildings is removed, the buildings must be divided from each other as directed by the act.

The first schedule of the act gives the thicknesses of "external and party walls" with reference to their lengths and heights, the height (for this purpose) being measured from the base of the wall to the level of the top of the topmost storey; which means the underside of the tie of the roof, or half the vertical height of the rafters where there is no roof-tie. But the party-wall must, by section 17, be carried up above the roof flat or gutter of the highest building adjoining thereto, so that it shall be 15 in. above the flat or gutter, and 15 in. from the roof when measured at right angles to its slope. If any turret, dormer, lantern-light, or other combustible erection be upon the roof within 4 ft. of the party-wall, the wall must be carried up 12 in. above such erection, and be 12 in. wider on each side than it is. Also, the wall must be carried up above any part of a roof that is opposite to and within 4 ft. of such wall.

By section 13, recesses may be made in party-walls, but the backs of them must be 13 in. thick. They must be arched over, must not come within 1 ft. of an external wall, and must not extend over more than one-half the area of the party-wall.

Section 18 forbids that a chase cut in a party-wall should exceed 14 in. in width or 4½ in. in depth, or should leave less than 8½ in. of brickwork at its back, or should be within 7 ft. of any other chase on the same side of the wall.

By section 23, any opening made in a party-wall for the purpose of uniting two buildings, which together would contain over 216,000 cubic feet, must be not more than 7 ft. wide and 8 ft. high, and the floor, jambs, and head must be of brick, stone, or iron, and have two wrought-iron doors, each ½ in. thick, separated by the full thickness of the wall, each fitted in rebated frames, without woodwork of any kind. Buildings so united must be in the same occupation, and when they cease to be so occupied the openings must be built up.

By section 20, the back of every chimney opening in a party-wall must be 8½ in. thick, from the level of the hearth, to 1 ft. above the mantel, and no chimney-breast or shaft built with or in a party-wall must be cut away without the certificate of the district surveyor.

Sections 24 and 25 fix the thickness of the party arches which have to be constructed to separate different properties.

As to timber in party-walls, by section 15 the ends of bresssummers and of beams or joists, if bearing upon party-walls, must be 4½ in. from the centre. Bresssummers must have stone or iron corbels under them, and must have 4½-in. piers or else storey-posts under them, in addition to their bearing on the party-walls.

The foregoing regulations, which may be profitably studied at length by referring to the respective sections, will help to a right understanding of that part of the act which deals specially with the rights, duties, and powers of the respective owners of party-structures. These are the subject of constant dispute, often leading to grave annoyance and loss; it is therefore highly important that from the first step everything relating to a party-wall should be conducted with careful reference to this part of the act. But, in fact, this is very often neglected, the whole proceeding being carried on without regard to the law, or in reliance on the good nature of the respective parties, although, as neighbours, they are in a position of natural antagonism to each other. The following considerations will show that such a practice as this is unsafe, and ought not in any case to be followed.

Laws are made to be observed; not to be ignored. A client has a right to expect that when there is a well-known mode of procedure legally established, that mode shall be followed by his architect in every particular. Although he will give no special credit if everything goes well, he will have a right to complain if they go badly. There is always a risk that some complication will arise even in the simplest matter, especially if it is known that it is being loosely managed, for then either party may see his way to gain something by taking advantage of the want of strict arrangement. Even when all parties wish to be fair, it often happens that owners of property are so nervously anxious about it that they think everyone who touches it is doing them mischief. Then the parties may quarrel during the progress of the work, or they may die, when their successors could be neither legally nor morally bound to adopt any arrangement not legally made. It very frequently happens that parties are only limited owners, being lessees or tenants for life, or they may be trustees for parties, who will hold them responsible for any damage to the property. If the owners are a public body, their officers will not be justified in allowing anything less than the strict fulfilment of all legal requirements. If any loss is caused through irregular proceedings, the architect or the builder may find himself

\* By Mr. Thomas Blashill. Read at meeting of the Architectural Association, London, on the 17th ult.





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saddled with the whole responsibility for damage caused in executing works which he had no more real authority to do than any man in the street. Lastly, it is generally quite as little trouble to do what the law requires as to manage the matter in any irregular way.

The owners of a party-wall are called "tenants-in-common" of the wall; they are not owners each of the half wall which stands on his ground. When there is no Building Act, either owner could pull down the whole if he thought he should like to have a better one. The only foundation in the act for this idea of separate ownership seems to be in the interpretation of the word "area," which, as regards a building, is to include "such portions of the party-walls as belong to the building."

Party structures, considered as belonging to different owners, are dealt with in Part III., beginning with section 82, which enacts that such one of the owners of the premises separated by, or adjoining to, any party structure, as is desirous of executing any work in respect of it, shall be called the building-owner, and the owner of the other premises shall be called the adjoining owner. Now "owner" (by the interpretation clause) applies to "every person in possession or receipt either of the whole or of any part of the rents or profits of any land or tenement, or in the occupation of such land or tenement other than as a tenant from year to year, or for any less term, or as a tenant at will."

At an early period, often before the old building is pulled down, the building-owner should cause a party-wall notice to be served on every adjoining owner, and as the work to be done may not as yet be finally settled, it is wise to include all the matters which a building owner can do in the notice. There is often great difficulty in finding out the real owners; a weekly tenant will represent himself as a leaseholder, or a *bona fide* leaseholder may have so short a term that he will be gone before the notice expires. As a rule, it is best to serve a notice on everybody who seems to have any interest in the property, for if they are not owners the notices will not make them owners. The notices usually bring all parties to some arrangement. If there is a leaseholder, he being responsible to his lessor, most usually and properly is the party solely dealt with, but the freeholder will sometimes insist on protecting himself also by an award.

The form of notice is printed and sold by authority of the Metropolitan Board of Works, and is usually filled up and served by the architect of the building owner. I suppose it is intended that this ordinary matter may be properly managed without its being necessary to take legal advice and incur needless expenses. As it cannot be properly said to be the architect's business, he had better strictly limit himself to such cases as are quite plain and clear; and if there is the least doubt as to the proper parties on whom to serve notices (as there must often be in the case of trusteeships and of companies), he should let his client's solicitor take the responsibility. The same may be said when the clients are trustees or a company. The notice must be given to the adjoining owner three months before any works can be done by delivering the same to him personally, or by sending it by post in a registered letter at his last known place of abode. All other notices or requisitions must be served in the same way. The architect is usually named in the notice as the surveyor appointed by the building owner to superintend the work, and to settle on his behalf all matters of difference that may arise in relation thereto. This is convenient, but not necessary, for the building owner is not bound to appoint a surveyor until he has received ten days' notice from the adjoining owner to do so.

It is very common to receive a party-wall notice signed by the architect on behalf of the building owner, which is invalid, and if any difficulty arises his client may disown him. It is also common to name as "the

surveyor" a firm of architects instead of that member of the firm who intends to act; in these cases the appointment is invalid.

We have nothing to do here with the motives which may often render it desirable for the building owner to keep the exact nature of his intended operations secret as long as he can; such, for instance, as his possible interference with ancient lights. But, as a rule, it is only courteous to let the adjoining owner know, if he wishes it, as soon as possible what is to be done, for it may happen that some of the works included in the notice will so seriously interfere with his property that long notices and arrangement with other parties is necessary. I have had cases where the nature of the occupation of adjoining premises was such that it was found better to build a new external wall than to pull down and rebuild the party-wall.

If the adjoining owner does not within fourteen days express his consent to the notice, "he shall be considered to have dissented therefrom, and therefore a difference shall be deemed to have arisen" between the parties. It is as well that this difference (which is almost inevitable) should be allowed to arise thus, by lapse of time, rather than by writing a formal letter, which may convey the idea that serious obstruction is intended. After the lapse of this time the adjoining owner may appoint the surveyor who is to act on his behalf, but he is not bound to appoint him until ten days after he has had formal notice to do so, for the original party-wall notice does not ask him to appoint a surveyor, though many persons seem to think it does. If either party makes default in appointing his surveyor after this ten days' notice, the party giving the notice may make the appointment in the place of the party making default. The building and adjoining owners may concur in the appointment of the same surveyor, who, in that case, has the same power as the two surveyors and the third surveyor whom they are required to appoint. This appointment is very often neglected. A surveyor who desires to obstruct will try to avoid it. It is, however, the first business to be done between the two surveyors, whether they are going to agree amicably or not. He will naturally be some person whom both parties believe will act fairly and impartially if required. If either party refuses to join in the appointment of the third surveyor, there is nothing in this act to compel him to do so; it is a matter for legal advice, but it is a very unusual course to take. On this point, I would remark that it does not seem the duty of surveyors when placed in the position of arbitrators to exercise their ingenuity in placing obstructions in the way of the other side, as if they were solicitors instructed to fight a matter to the uttermost. They are appointed to see that the difference is fairly adjusted, and that is all that either side can honestly desire. The appointment of the third surveyor should be in writing, signed by both parties, although he may never be called upon in the matter. Indeed, I believe the act is clear that he must at least be appointed, for the 7th clause of the 85th section says that the "one surveyor" (agreed on between the parties), "or three surveyors, or any two of them, shall settle any matter in dispute." So that they must be *two of three*, and not simply *two*. Observe also that the third surveyor is not an umpire, as is often imagined. He can only act with one or both of the others; and in cases of very great difficulty and responsibility he had better be joined with the other two for the security of all parties, and to show that every care had been taken to arrive at a proper decision. The duties of the surveyors are "to settle any matter in dispute between such building and adjoining owner, with power by his or their award to determine the right to do, and the time and manner of doing, any work, and generally any other matter arising out of or incidental to such difference." But they have no power to award that the work shall be begun before the expiration of three months from the date

of service of the party-wall notice, which requires the permission of the adjoining owner himself. There is an appeal within fourteen days to the county court, which brings the matter into the hands of the lawyers, where we may very well leave it. The award must not deal with anything beyond the act, and if in carrying it out injury is done to ancient lights of the adjoining owner, it will not protect the building owner from the consequences thereof.

We find the rights of the building owner defined in the eighty-third section. The Master of the Rolls recently laid it down in a case in which I was engaged, that this section contains *all* his rights; and that, within the area affected by the act, he has no others: The eighty-eighth section regulates the apportionment of the cost of works that may be done, and it will be convenient to read the two sections together.

1st. The building owner may repair any party-structure that is defective or out of repair, and the cost in such case must be borne by the two owners in due proportion, regard being had to the use which each makes of the structure.

2nd. He may pull down and rebuild if it is so far defective, or out of repair, as to make this necessary or desirable, on the same terms as to the cost.

3rd. He may pull down any timber or other partition dividing the building that is not conformable to the act, or to either of two older Building Acts which next preceded this act, and build a proper party-wall instead, each owner bearing his due proportion of the cost according to the use he makes of the wall, and also to the thickness of wall which his building requires. 4. He may deal with intermixed property; and 5th, with buildings communicating over public ways, which will involve very complicated questions not relating to party-walls, and which may, therefore, be passed over here. 6th. He may raise any party-structure permitted by the act to be raised, or any external wall built against such party-structure; but as this would be solely for his own convenience, he must bear the cost, and must, besides, make good all damages occasioned to the adjoining premises, or to the internal finishing and decorations, and carry up all flues and chimney-stacks of the adjoining owner, so far as the new works may render it necessary. 7th. He may pull down any party-structure,—that is, of insufficient strength for his intended building, and may rebuild it of sufficient strength, on the like conditions as to cost and as to making good damage to adjoining premises their internal finishing or decorations. 8th. He may cut into any party-structure at his own cost, and on condition of making good damage to the adjoining premises. 9th. He may cut away any footing, chimney-breast, jambs, or flues projecting from the party-wall in order to build an external wall against it, or for any other purpose on the same condition as to payment of cost and damage. And although they, being upon his side of the wall, may be considered his own property, he cannot deal with them without a proper award under this act, nor can he cut away the chimney-breasts or shafts without the certificate of the district surveyor, as already pointed out. And after the external wall has been built, the party-wall remains a party-wall, which may cause future trouble to either owner, or to both.

Finally there is a very comprehensive clause giving the building owner a right to perform any other necessary works incident to the connexion of party-structure with the premises adjoining thereto.

It will be seen that there is very great scope for the exercise of the judgment of the surveyors on most of these points. There is the just apportionment of costs when work has to be done at the expense of both owners. Where the respective buildings differ greatly in size, and the party-wall which would be thick enough for one has to be built thicker in respect of the larger building, the exact position of the centre of the wall with respect to the line dividing the two properties may



have to be fixed separately for each floor. As there are certain parts of the metropolis where the space in a building occupied by a thickness of only  $4\frac{1}{2}$  in., more or less, in a party-wall would be worth several hundreds of pounds, the importance of this arrangement is evident. Besides this, questions as to what damage has been done to the promises of the adjoining owner, his finishings and decorations, and the value thereof, are often very complicated. No power is given to make the building owner hoard up, or pay for boarding up, the rooms of the adjoining owner that may be left open by pulling down the party-wall. No award, therefore, can deal with that particular item, whatever remedy might be found by action at law,—a not very promising proceeding. If the building owner fails to make good any damage done he is liable to a penalty not exceeding £20 per day, at the discretion of the magistrate.

Although power is given above to raise a party-wall, no power is expressly given to underpin or to continue the wall downwards,—an operation frequently requiring to be done and included in a party-wall notice. I think we may draw a distinction between an ordinary act of underpinning, where such work is necessary by reason of the base of a wall being decayed or placed on a defective foundation, which act is of the nature of a repair, and the act of extending a wall downwards for the purpose of forming a basement of one or more storeys in depth below the old foundation. The Master of the Rolls, in the case to which I have referred (*Standard Bank v. Stokes*) had all this before him, and gave the opinion that the power given to raise a wall is wide enough to include this downward extension of it. He said, "Is it necessary to limit the word 'raise' to putting something on the wall on the top, and may not you raise or make it longer, or build it up by something on the bottom? I do not think it necessary so to hold." He considered, also, that having power by another subsection of the act to pull down a wall and put it up again, it would be an extraordinary reading of the act to say that you may not do something less; that is to say, support it and put a new wall underneath it. But the judge founded his decision on the power which is given "to perform any other necessary works incidental to the connexion of party-structure with the premises adjoining thereto." He said, "If you make the sub-basement, and you do not support the wall, it will fall down, and it is incident to its connection, because, if it fell down its connection could be terminated in a very summary manner. If one may presume to choose between these three reasons, I should say the last seems to be the best. As to the whole of the rights that are given to the building owner, the act provides that he shall not exercise them in such a manner, or at such time, as to cause unnecessary inconvenience to the adjoining owner, and we have already seen that the surveyors are to determine the time and manner."

The rights of the adjoining owner, as affecting the party structure, are as follow. He may require the erection thereon of certain chimney jambs, breasts, or flues, or certain piers or recesses, or any other like works for his own convenience, and the building owner must do this if it will not be injurious to him or cause unnecessary inconvenience or delay. The adjoining owner may require these works to be done by giving a notice, a printed form for which is provided, within one month after his receipt of the party-wall notice from the building owner, or he may do the works himself. If he gives a notice it must be done in the same way as laid down for the notice by the building owner, and if a difference arises thereon it must be dealt with by the surveyors. Sections 89, 90, and 93 give the mode of arranging the payments by the adjoining owner for works done on his requisition. He may demand from the building owner security for costs and compensation before the work is commenced, and the amount of the security

is to be fixed by the judge of the county court in case of difference.

By section 92, the building owner is to stand possessed of the sole property in the party structure until any contribution which may be due from the adjoining owner in respect of it is paid. This may seriously hamper the adjoining owner in dealing with his property, and may induce him to pay.

The party-wall considered as a "dangerous structure" very frequently comes under the notice of the district surveyor. Its connexion with the external walls is peculiarly liable to cause danger to a building. A case is now under my notice where the front walls of a whole terrace of three-storey houses, some fifty years old, have to be taken down and rebuilt, mainly owing to the party-walls having been first erected, and the front walls afterwards built up against them without any bond whatever. I know of a case in which this process was reversed. A long façade was first erected, and afterwards the party-walls were built against it at such distances as suited the wishes of purchasers, good bond being, of course, impossible. New fronts have constantly been added to buildings, with very slight possibility of getting good bond to the ends of the party-walls, and even in the building of new premises great difficulty is experienced in making the façades of two adjoining houses meet at the centre line of the party-wall, and at the same time getting good bond. Nevertheless, this ought to be done, for we very frequently meet with cases where the walls at this spot are cracked from top to bottom, and are very far from being safe.

In cases of rebuilding, where a party-wall, being exposed, is found to be unsound, it is the duty of the surveyors duly appointed to determine on the steps necessary to be taken in respect of it, and they ought to keep the responsibility from all other parties. Very frequently where work is being done irregularly, the building owner gives the adjoining owner notice that he will not be responsible for anything that may happen to the adjoining premises; but at least he must have some responsibility for the party-wall of which he is joint owner. If neither party will support it, it may result in accident before the attention of the district surveyor is called to it. On the other hand, a building owner who has neglected to give the proper notice in good time, and desires to rebuild a party-wall without waiting for the period of three months, is often anxious to get the wall condemned as a dangerous structure, which would operate unfairly to the adjoining owner. One who desires to build a new wall, and to make his neighbour pay half the cost, although the existing wall may be quite good enough for the latter, will also try to obtain the condemnation of the wall, often on very slight grounds.

I have now touched upon every part of the Metropolitan Building Act which relates to party-walls, except only certain matters of procedure which are rather in the department of the lawyers than in ours. Nevertheless, these portions may be very usefully studied, and the opinion of an experienced lawyer on any difficult case will usually throw great light on any part of the act. My object has been to arrange the matter in a form to be easily understood, to point out those misapprehensions which seem most prevalent, and to notice some of the cases of difficulty which we meet in practice. I shall feel glad if those members who have had most experience in these matters will give us the advantage of it, and particularly if they will point out any matter which seems to have been insufficiently noticed, or which requires to be corrected, and I trust that the result will be useful to the members of this association.

CHARLES LEVER.—"Mr. Fitzpatrick (says the *Athenæum*) is writing a biography of the late Charles Lever. It will contain certain chapters of 'Harry Lorrequer' which went astray in manuscript, which had to be re-written from memory, and which were not recovered till long after the appearance of the novel."

## "JERRY" BUILDING AT ASTON, BIRMINGHAM.

At the Aston Petty Sessions, before Messrs. Hill, Fowler, & Smallwood, Charles Harman, tailor, of Vauxhall-grove, was summoned, at the instance of the Local Board of Health, for "that he, in the month of July, did begin certain cottages in Clarendon-street, Aston, without having given notice to the board of his intention to do so, in writing, left at the office of the surveyor, and without having deposited tracings and plans of the buildings, as required by the bye-laws."—Mr. J. Ansell, who prosecuted, stated that in September last the assistant-surveyor found that defendant had erected four cottages at the rear of premises in Clarendon-street, and that not the slightest notice had been given of the fact to the Local Board. The omission to comply with the bye-law was the more serious because the cottages had been built utterly regardless of sanitary requirements. The bye-laws of the manor relating to buildings provided that there shall be an open space, 12 yards in depth at least, either at the front, rear, or sides of houses; that every habitable room must have at least 100 superficial feet of space, and be fitted with an air-shaft or chimney; that the windows shall be made so that the upper and lower halves shall open at the full width, or in a casement window one-half shall open; and that the privies and ashpits shall be so constructed as not to be injurious to health. The surveyor would prove that these rules had not been complied with, and that the buildings were such that if the plans had been submitted they would not have been at all approved by the authorities. Under these circumstances he would ask the Bench, when evidence had been adduced, to order the whole of the erections to be pulled down. The magistrates were empowered to give the order by the 158th section of the Public Health Act, 1875.—Mr. Hill pointed out that the section referred only to cases where plans of buildings had been submitted to and disapproved by the authorities, and the buildings themselves objected to. In the present case no plans at all had been presented, or even notice given by defendant, and the omission was not found out until the cottages had been erected.—Mr. Rowlands (magistrates' clerk) thought the prosecution had better deal with the offence contained in the information—that of not giving notice to the authorities and neglecting to submit plans. A penalty of £5 might be imposed for such an offence, and defendant would render himself liable to a fine of £2 for each day he omitted to comply with the bye-laws.—Mr. Ansell urged that the infliction of a penalty would not answer the purpose of the board, inasmuch as the cottages were so constructed that proper sanitary arrangements could not be made. The only thing that could be done was to pull them down, and the Public Health Act of 1875 gave the Bench power to order that course to be adopted. Clerks to local authorities, who were also members of the legal profession, had advised that buildings not erected in accordance with the bye-laws might be pulled down without the assistance of the magistrates; but of course he (Mr. Ansell) would certainly not prefer to take that course.—Mr. Hill remarked that the magistrates had nothing to do with what clerks to other Local Boards had taken upon themselves to advise. The Legislature had not given the Bench any authority to make an order for demolition in the present case.—Mr. William Batten, the surveyor of the Manor of Aston, stated that the open space on the right side of each cottage was 22 ft. 2 in., and on the left 29 ft. 3 in. The privies were situated between two rows of houses, and there were only two of those conveniences to eight dwellings. The openings of the ashpits were in the wash-houses, and placed between two furnaces, and the floors of the privies had to be lifted to empty the pits.—Mr. Fowler said it was impossible to conceive a worse arrangement.—Witness added that the windows were not properly constructed,



and there was a small bedroom in each cottage of only 44 superficial feet, and having no ventilation. The other bedroom in each dwelling was properly constructed.—In reply to Mr. Fowler, witness said if the plans had been submitted to him as surveyor he should most certainly have disapproved of them. The four cottages would not cost more than £200 building, and the total rents of them amounted to about 15s. a week.—Defendant said he must place himself entirely in the hands of the magistrates. He was ignorant of the law, and there were others who had done the same as he had.—Mr. Hill: Who was the architect?—Defendant: I was my own architect!! Mr. Hill remarked that if defendant wanted to turn his attention from his trade of tailoring to that of building he should have made himself acquainted with the requirements of the law. It was a most wholesome law, and was intended to prevent buildings being erected to the prejudice of the people's health.—Defendant urged that he had not the means to pull the buildings down.—After consulting with their clerk, the magistrates decided to fine defendant £5 and costs, or in default one month's imprisonment. Mr. Hill said that defendant must be made aware that the matter would not end there unless he altered the cottages so as to comply with the bye-laws, for he was liable to a daily penalty of £2 until he did so. It was to be hoped that the publicity which would be given to this case would act as a caution to others.

## MUNICIPAL ACTION AND INACTION

### SMALL-POX.

*Re* small-pox and the question of establishing a convalescent home, and the report of the Public Health Committee on the same, led to the following motion by Mr. Gray at the last meeting of the Corporation:—

"That the report be referred to the Public Health Committee, with the intimation that the Corporation would be disposed to consider in a liberal spirit any proposal that it should aid in the establishment of a convalescent home for the use of patients recovering from dangerous and infectious diseases, and that their resolution be communicated to the Governing Body of the Dublin Hospitals with an intimation that the council would be happy to meet in conference the committee of the whole house with the object that the Public Health Committee be authorised to take the necessary steps in conjunction with the Town Clerk to bring about such a conference at an early date, and be authorised to invite thereto any persons interested in the movement."—Adopted.

### DR. MAPOTHER.

The Town Clerk read a letter from Dr. Mapother resigning his post of Superintendent Medical Sanitary Officer, but retaining that of Consulting Medical Sanitary Officer.

Alderman Harris moved a resolution that the letter be referred back to the Public Health Committee, and the committee be requested to draw up a report, first as to what duties Dr. Mapother fulfilled up to 1874 for which he received £150 per annum, and what additional duties to 1877, for which he received an additional £150 per annum, and what duties exactly—if fulfilled—would be fulfilled by him as Sanitary Medical Officer of this city.

Alderman Dennehy in seconding the resolution, said Dr. Mapother resigned the position for which he was not paid, but retained the one with the emolument. He (Mr. Dennehy) believed four practical men would do the sanitary business of the city better than the Public Health Committee. The time of the committee was occupied by "tomfoolery" with their documents and their minutes. For three weeks a broom had never been laid in Kennedy's lane. The condition of dirt in which the city was left—and the chairman of the Public Health Committee would not listen to him when he spoke to him about it—was sufficient to spread a plague. What they wanted was practical work, and not humbugging, and when he (Mr. Dennehy) was on a previous Public Health Committee they did more work in a week than the present committee did in a month.

### SUNDRIES.

The Town Clerk read a communication enclosing a writ served on the Corporation at the suit of Mr.

Crofton, late Supervisor of Waterworks, in respect of a claim on a bond for £3,000.

The Town Clerk read a letter from the Commissioners of Public Works, requesting information as to the amount which may be taken up during the year to end 31st March, 1880, of the proposed loans of £30,000 for sewage works and £5,000 for plant for removal of house refuse. On the motion of Mr. Gray it was resolved that notice would be given to the Commissioners that £20,000 for the sewage works and £5,000 for plant for removal of house refuse would be required.

The Town Clerk read a letter from the Commissioners of Public Works requesting information as to the amount which may be taken up during the year to end 31st March, 1880, of the proposed loan of £100,000 for the extension of Welsh sett pavements. On the motion of Mr. Byrne, seconded by Alderman Harris, it was resolved to take up the entire loan.

*Re* M'Evoy v. the Corporation a communication was read stating that the costs of this trial would have to be paid or a distraint would be levied.

Sanitary matters and reminders of sanitary neglect, appear from the proceedings of the Corporation, to be only subjects to laugh at, but law costs are never subjects for laughter. The Corporation say they have no funds for sanitary work, and they seem to be otherwise of opinion from some occult reasons of their own that nature and human nature is preventing them doing what they desire to do. The members of the Public Health Committee might do worse than walk in a body through the leading streets of Dublin (that is if they thoroughly believe their own statements) singing the song of the "Frozen Out Labourers"—"We've got no work to do." Sanitary work they have and, plenty of it; but they are not inclined to work, and as the proverb says in regard to laziness "What's bred in the bone is hard to get out of the flesh."

## NEW BUSINESS PREMISES, LONDONDERRY.

THE old-established firm of Messrs. Mulholland and Co., Londonderry, have just had erected for them in Bishop-street and Pump-street extensive premises for their business as general drapers. The local *Sentinel* is of opinion that "this establishment, for extent, completeness, and general appearance, is unrivalled in the North of Ireland, and is only equalled by some of the more extensive metropolitan houses in the same line." The premises extend from Bishop-street to Pump-street a depth of 260 ft., having frontages to both streets of 60 ft. and 36 ft. respectively. The elevation to Bishop-street is 50 ft. in height, in three storeys, marked by boldly-moulded cornices with conventional foliage. The shop façade is of two bays 20 ft. each, separated by a vestibule 12 ft. x 9 ft. The front is flanked by bold pilasters, and an effective central feature is produced by similar projections. All these rest on massive shafts of Aberdeen polished granite, with richly-carved capitals, above which are introduced, in flat stone consoles, four medallion inlays of Connemara marble. The plate glass windows are divided by highly-ornamental cast-iron arcades, divided each into three bays by arches springing from delicate shafts. A similar arcading, in two bays, returns within the vestibule, which is laid with Mintons' encaustic tiles, and enclosed along the sides, to a height of 2 ft. with cast-metal panels of diaper pattern inserted between the shafts. The whole of the shop front is protected by Salmon, Barnes, and Co.'s patent revolving shutters. On the second storey the windows, filled with plate-glass and divided by bead rolls and transoms, are circular-headed, with moulded impost, bold archivolts, and key-stones. The third storey windows are segment-headed on the flanks, and similarly finished, but without archivolts. Centrally there is a circular-headed two-light window, which opens on a cast-metal balcony, projecting 3

ft. 6 in. beyond the line of front; it is supported on two ornamental iron trusses, resting on the capitals of two pilasters of Aberdeen polished granite, which sit above the shafts already described. The main cornice is boldly moulded, and projects on leaf-enriched consoles closely spaced. All the cornices break over the pilasters, thus forming effective capitals. The main cornice is finished with a blocking and balustrading of cast metal. The whole of the front is executed in Portland cement. As to the internal arrangements of the building it will suffice to state that they are admirably planned with a view to the demands of a large trade, necessitating various departments. Every possible provision has been made for ventilation, especially at the base of the domes, and by ventilators placed over the gaslights, which communicate, by means of ceiling-flues, with air-shafts in the walls, and revolving ventilators on roof. The works were carried out, from the plans of a local architect, by Mr. Joseph Ballintine, Strand-road, Derry, in the most satisfactory manner. We have not been informed as to the amount expended.

## LAW.

HIGH COURT OF JUSTICE—CHANCERY DIVISION, Jan. 22.

(Before the Vice-Chancellor.)

*James Devereux v. Owen Connolly.*—This was an action to restrain defendant from using a chimney, the smoke from which plaintiff alleged had caused injury and annoyance to his house, and also to recover damages for injury and annoyance already occasioned by said chimney. According to the statement of claim, plaintiff, a merchant residing in the town of Enniscorthy, in a house which he holds from the Earl of Portsmouth, under a lease for lives, has resided there since 1843. There are a yard and out-offices at the rear of the house. Defendant had resided for about three years in the house adjoining that of plaintiff, in which he carried on the business of a flour merchant. A wall about 19 ft. high separated the yard belonging to plaintiff's house from that of defendant's. About 1874 one John Whitford, who occupied the house immediately before defendant, erected a chimney 27 ft. high within 9 ft. of the rear windows of plaintiff's house, and within 1 ft. of a pantry connected with it. Smoke and soot from this chimney had caused the annoyance complained of, obliging plaintiff frequently to close his windows, and rendering it impossible for him to use his yard for such purposes as the drying of clothes. Last year defendant erected a bakehouse close to the partition wall, and raised the chimney 5 or 6 ft. higher than it was before. Smoke and soot had since been emitted from it in much greater quantities, and had seriously affected the health and comfort of plaintiff's family, besides depriving him of the use of light and air through his windows. The defendant's case was that plaintiff himself formerly occupied the house now held by defendant, and carried on tallow melting there. After plaintiff left the house it was used as a bakery. The chimney in question was then 17 ft. lower than it is now, and not nearly so well constructed for the purpose of carrying off the smoke as it was at present. Defendant was tenant from year to year under John Whitford, who had a lease of it, and formerly occupied it; and during Whitford's occupation he raised the chimney 8 ft. in order to carry away the smoke, for which the plaintiff thanked Whitford, and did not afterwards complain to him. Defendant denied that plaintiff had sustained any annoyance or damage, and alleged that the chimney was now higher than ever it was before—viz., 36 ft.; that it was not used during the day, and that the smoke from it was, if anything, less than it had previously been.

The Vice-Chancellor considered that there was not sufficient evidence to support the application for an injunction, and therefore dismissed the suit.



# ADVERSARIA HIBERNICA, LITERARY AND TECHNICAL.

THE excavations carried out by Dr. Schlie-  
mann at Ilium and other places, and the  
details he gives of the "finds" made, to-  
gether with the historical associations with  
which they are connected, are indeed most  
suggestive to a mind prone to trace the course  
of history. Treasures may not be had in  
every country, and indiscriminate excavations  
would possibly lead to a wild waste of money  
and time. Wealth and golden treasures are  
associated with eastern nations, because we  
know much of their early histories; and poets  
and chroniclers have left us accounts which  
in many instances cannot be proved false  
until certain labour like that undertaken by  
Dr. Schlie-  
mann is performed.

We have reasons for suspecting, if not  
for positively believing, that there are buried  
cities and towns in eastern and western  
Europe as well as in Asia; and we might say  
the same in respect to Africa and America.  
Again, what is possible on the Continent is  
possible in the British Islands, even though  
our national annals do not, as far as they are  
published, afford us many cues. In the  
British Islands some towns, and among them  
old seaport ones, have in the lapse of several  
centuries so decayed as to have become  
nearly rubbed out. Some inland places,  
either through intestine strife or plague, be-  
came so depopulated as to have sunk back to  
the dimensions of villages, while in the case  
of seaboard places the sea has encroached  
upon them and wiped out their existence  
almost earthquake-like. We hold a belief  
that time will yet bring to light many sur-  
prising evidences of the past history—of a  
life and a state of society little suspected,  
but nevertheless once existent in the British  
Islands.

The ancient town of Bannow, in the County  
Wexford, early in this century gave rise to  
not a little discussion, and by some writers  
this same submerged town has been called the  
"Irish Herculaneum," and by others the  
"Irish Pompeii." A writer in a Dublin  
magazine nearly fifty years ago, in drawing  
attention to the town of Bannow and to the  
appearances of the place, wrote:—"There  
remains, on the southern coast of Ireland, in  
the County Wexford, a small bay enclosed  
between two mountains; a sandy bank and  
an irregular soil, arid, and covered with a  
sorry vegetation, distinguishing it from the  
surrounding country, which is fertile and is  
indeed picturesque. The heights are placed  
parallel, and crossed at right angles; and  
such is their regularity that at first sight one  
is led to suppose them to be the work of man.  
This conjecture is strengthened on observing  
the summit of an ancient steeple rising in the  
midst of the solitude. Here indeed was once  
situated the town of Bannow, which is now  
buried in the sand; the parallel lines, the  
regular depressions of the soil, clearly indi-  
cate the directions of the streets. 'In fol-  
lowing the course of one of these streets,'  
says the narrator of this singular fact, 'one  
sees where the sea originally approached it;  
for, on slightly digging into the sand, we  
discovered the remains of an old quay made  
of bricks.' At the extremity of the town, a  
monument, half buried, yet remains; it is a  
church, the only entrance to which is by the  
roof; the interior has been cleared away, in  
all probability by some traveller, or from  
being closed on all sides at the moment of  
the catastrophe, was preserved from the  
irruption of the sand which lies heaped up  
all around it. To judge from the style, it  
was erected a considerable time previous to  
the invasion of Britain by the Normans."

We can lament with the writer when he  
says that it is strange that such a singular  
discovery did not excite more attention, and  
induce some one to have prosecuted further  
inquiries. Our native annalists do not supply  
us with any facts that would enable us to fix  
the date of the destruction of the town,  
though the time cannot in this instance be  
very remote. The local history of Wexford  
shows that the town of Bannow was once a

flourishing place, had a large population, and  
considerable wealth. The taxes levied on  
the district for several hundred years afford  
a criterion as to the importance of the town.  
The action of the sea and the wind acting on  
the sand have led in the course of years to a  
total change in the appearance of the land-  
scape, and not only Bannow has changed, but  
the district around it. A map of the county  
of the date 1657 shows the island of Slade in  
the bay opposite to it, from which it is sepa-  
rated by a channel, and in the nautical charts  
directions are given for avoiding the shoals  
in this channel, which were then considered  
dangerous. Since that time the whole is  
united to the mainland—rocks, island, and  
channel existing no longer. We may add that  
the particulars furnished in the above account  
will be found more or less detailed in a  
memoir or paper read many years ago before  
the Geographical Society of Paris.

Pendant to the foregoing, another writer  
of the same period mentions that he had in  
his possession a MS. headed "Irish Hercu-  
laneum," and he furnishes the following ex-  
tract from it:—"Between the harbours of  
Wexford and Waterford is a fertile tract of  
land containing about sixty square miles,  
called the baronies of Forth and Bargie.  
The appellations are significant: *bar* is fruit-  
ful, and *forth* is plenty, and *gie* the sea; the  
name, therefore, indicates exactly the cha-  
racter of the place—a fertile and plentiful  
tract on the sea-coast. Behind it runs a  
ridge of mountains, and before it runs the  
sea, so that it is in some measure insulated,  
and retains much of the primeval and original  
character of a place cut off from free inter-  
course with the rest of the country. It,  
moreover, lies off Cardiganshire, in Wales,  
and certain promontories projecting to the  
east approach so near to the contiguous coast  
as to invite the inhabitants of the other side  
to come over and visit it. From the earliest  
periods, therefore,—long before the Anglo-  
Norman invasion—a free intercourse had  
taken place between the two principalities,  
and many Irish families settled in Wales, and  
many Welch in Ireland. The latter are so  
numerous that a large district in the County  
Wexford is called Scarla (Welch), and there  
is a long tract of highland in the neighbour-  
ing County of Kilkenny called the Welch  
Mountains, from the number of families of  
this name and nation which occupied them,  
where at this day they form a clan or sept,  
and, as the colonisation was gradually effected  
by free consent and friendly intercourse, the  
name of Welch is held in more esteem by the  
peasantry." The MS. left off here, the writer  
probably intending to continue his subject.  
In the first volume of the Transactions of the  
Royal Irish Academy there is a paper by  
General Charles Vallancey, the antiquary,  
giving an account of the (now extinct) lan-  
guage and customs of the inhabitants of the  
baronies of Forth and Bargie.

The Sands of Rosapenna, on the Donegal  
coast afford another striking illustration of  
what the wind can do, acting upon the waves  
and sands. Here a scene was realised, re-  
minding one of the desert of Arabia and of the  
description given by the elder Darwin of the  
destruction of the army of Cambyes in the  
Nubian desert. The raey writer of "Sketches  
in the North and South of Ireland" speaks of  
the scenes to be witnessed on the coast of  
Donegal as "a line of coast and country ex-  
tending from the sea into the land, until it  
almost meets the mountain on which we stood,  
and exhibiting one wide waste of red sand; for  
miles not a blade of grass, not a particle of  
verdure, hills and dales and undulating swells,  
smooth, solitary, reflecting the sun from their  
polished surface of one uniform and flesh-like  
hue." This was fifty years ago, and half a  
century previous to that time was described  
as a line of coast as highly improved in its  
way as the Ards on the opposite side of the  
bay was at the later date. "It was," con-  
tinued the writer of the "Sketches," "the  
much ornamented demesne, and contained  
the comfortable mansion of Lord Boyne, an

old-fashioned manorial house and gardens,  
planted and laid out in the taste of that time,  
with avenues, terraces, hedges, walled parks,  
and altogether the first residence of a noblo-  
man—the country around a great sheep-walk.  
Now not a vestige of all this is to be seen—  
one common waste of sand, one undistin-  
guished ruin covers all. Where is the  
house?—under the sand! Where the trees,  
the walks, the terraces, the green parks, and  
sheep walks?—all under the sand. Lately  
[upwards of fifty years ago] the top of the  
house was visible, and the country people  
used to descend by the roof into some of the  
apartments that were not filled up, but now  
nothing is to be seen."

The spirit of the Western Ocean had indeed  
risen in its wrath, and the moving pillars of  
sand in the deserts of Sennar, as described  
by Bruce, is brought forcibly to one's recol-  
lection. Darwin's lines, however, already  
alluded to, are perhaps, more appropriate to  
our subject:—

"Gnomes, o'er the waste, you led your myriad powers,  
Clim'd on the whirls, and aim'd the flit'y showers;  
Onward resistless rolls the infurite surge,  
Clouds follow clouds, and mountains mountains urge;  
Wave over wave the driving desert swims,  
Burst o'er their heads, inhumes their struggling limbs;  
Man mounts on man, on camels camel-rush;  
Hosts march o'er hosts, and nations nations crush;  
Wheeling in air, the winged islands fall—  
And one great sandy ocean covers all."

The scene of desolation on the Donegal  
coast is attributable to natural causes, and it  
is said by some to be owing to allowing  
rabbits to burrow under the sea reed or *bent*  
*grass* loosening the sand, and thus exposing  
it to be drifted before the wind, when it  
formerly used to be firmly held down by the  
matted and network roots of that valuable  
grass. The *sea bent* is highly spoken of by  
several writers, and this simple grass is stated  
to be capable, even when unassisted by human  
skill, of fastening the sand, and presenting a  
formidable impediment to the encroachment  
of the ocean. Many improvers of waste  
lands by the sea have cultivated the sea reed  
or bent grass with good effect, and it has  
often been used on the shores of Holland.  
Despite the bent, however, or in its absence  
and from other causes, large tracts of sea-  
board land have been covered over with sea  
sand, and the process of encroachment still  
continues in several parts of the world.  
The sea beaten back in one place will make  
itself felt at another. If tidal rivers, too,  
are contracted too much, floods are likely to  
occur, for what is gained in land will be made  
up with an increased depth of water in the  
same locality or a great expanse elsewhere.

To the above we may add the following:—  
At Rutland, in the district of Donegal called  
the Rosses, there was expended towards the  
close of the last century the sum of £30,000,  
the expenditure being partly by the Irish  
Parliament and partly by the Marquis of  
Cunningham, in order to create a town and  
fishery establishment. The coast teemed  
with herrings, and the most curious part of  
the history of the enterprise is, that the year  
after this expense was incurred the herrings  
are said to have deserted the coast. More  
surprising still, or perhaps less surprising in  
one sense, is the fact that at Rutland the  
sands began to blow as at Bannow and Rosa-  
penna, and in a few years the large ranges of  
lofty buildings three and four storeys in  
height were covered on the sea side with  
sand, and anon you could walk up to the  
ridge-board of the roofs.

In Clew Bay, on the western coast of Ire-  
land, there was an island formerly called  
Minish, which in the reign of Charles I. had  
an area of twelve acres, as is proved by  
several documents of the period. In 1814,  
on being measured, the area of the island was  
found to be only 420 ft. long and 30 broad.  
Two years later, or in 1816, this island had  
altogether disappeared. Another example is  
furnished by the island of Clare in the  
immediate neighbourhood, showing the  
destructive action of the sea or those coasts.  
Though bounded by cliffs of great height it  
is continually corroded by the ocean, the  
action of which has worn deep caverns, and



from time to time immense blocks of stones are detached from the cliffs.

What we have related in our notes are only a few instances of submerged towns and places where no great treasures can be expected through excavations. Were we to take the pages of Keating, O'Flaherty, and other of our historians for our text, or the accounts of our early bards and chroniclers, we might point to possibilities through excavations that might inspire the heart of an Irish Schliemann to dig, dig, dig, and to keep on digging—that is, if the State assisted with funds; and he could prove that there was every reason for believing in his success. That there are several Pagan centres in Ireland, and treasures buried with them, we have little doubt; but then in the eyes of European *savants*, Hibernia, though it gave birth to an Ossian and a Gobhan Saor, cannot boast of a Homer. Bardic Ireland, however, is not ill represented, although she has produced no "Iliad." H.

### THE CAUSES OF THE HIGH DEATH-RATE IN DUBLIN.

A REPORT has been drawn up and presented to the Corporation of Dublin by its chief sanitary officers. Now on the threshold of our remarks let us say, that we wish to act fairly, but after a perusal of the report, which we will admit is a useful and suggestive document, we on the other hand must honestly say it is not a satisfactory one. Indeed, as a whole, the report of Drs. Cameron and Mapother is a very disappointing one, but, perhaps they cannot be held entirely accountable for the failure to satisfactorily account for the high—the excessively high—death-rate of Dublin. The Corporation needed some support, some defence for their past shortcomings and neglect, and this report will, in the eyes of several members and their friends, go a good way in absolving them of their sins of omission and commission. They may flatter themselves with that idea, but we hold a different opinion, and think that the report will go but a very short way in proving what the Corporation desired to have proved. The report is too long for quotation, but we will furnish a few extracts. As regards the state of the city, it says:—

"It is constantly alleged that Dublin ought to be a healthy city on account of its salubrious situation. On the contrary, the situation of the city is not naturally so advantageous for sanitary purposes as the sites of Edinburgh, Birmingham, and most other large towns. Dublin is built on the estuary of a river, and close in a bay with flat, muddy shores, over which sewage is spread in enormous quantities. The basement storeys of a large proportion of the houses are below high water level, and the main sewers, owing to topographical peculiarities, cannot continuously discharge their contents. We have it on the high authority of the Rev. Professor Haughton—equally eminent as a geologist and a scientific medical man—that Dublin, built, as he graphically describes it, on the 'bottom of a mud valley,' is naturally placed under most disadvantageous circumstances."

The above is nowise conclusive; for although portions of the city are low, a very large district on both sides of the Liffey is elevated ground. The quays and the streets in the vicinity of them are lowly situated, but on the south side from Cork-hill to Mount Brown is very high ground, and on the north side there is a continual and a great rise from the river to Dorset-street and Mountjoy-square. Were we to suburbanise on either side of the river we could prove there is a very large area of land much elevated, and a considerable height above the level of the sea. All our old medical authorities have considered that in a healthful and sanitary point of view Dublin is favourably situated. As

regards the outlying districts, the surroundings of Dublin—mountain, wooded land, and sea—all is conducive to healthfulness.

Here is how the excessive high rate of mortality is accounted for:—

"The unusually low temperature which has, with but few and brief intervals, prevailed since November in Dublin, has caused a very great increase in the mortality from diseases of the respiratory organs, and, together with a slight augmentation in the death-rate from zymotic diseases, caused by smallpox, fully accounts for the abnormal mortality of the fourth quarter of last year and the present month, so far as it has run. The average temperature during the last quarter was 1.1 deg. Fah. below that of London, which has naturally a lower winter temperature than Dublin. So prolonged a period of intense frost, with its invariable concomitant of a high death-rate, may not again occur for very many years. During the past sixteen weeks smallpox caused 183 deaths. Prosecutions for neglecting to have vaccination performed do not appear ever to be instituted in Dublin, though such neglect is very common. The Poor Law Boards and not the Public Health Committee have power to order prosecutions. We believe that smallpox is largely due to the absence of proper legislation on the subject of vaccination. We are fortified in this opinion by the statement of the Irish Medical Association made in their last report. Speaking on this subject, the report says:—

"Your council deeply regret that the vaccination laws at present in force in Ireland, which are admitted to be very imperfect, have not ere this been modified, and feel justified in expressing their opinion that the Government has been left without excuse for this inaction with regard to this important matter, and they feel bound to state further, that had either of the bills suggested by the association been made law, much of the loss of life and other evils which are daily being caused by the present epidemic of smallpox would have been averted."

"It is therefore clear that the spread of smallpox, the disease which is the chief cause of the increase in the zymotic death-rate, is aided by the state of the law, and we would urge the necessity of impressing on the Government the advisability of taking action in the matter. Fever was somewhat rife, 138 deaths being attributable to it. Cold, by producing overcrowding, conduced to this result; and during the prolonged frost a vast number of house-drains were not acting. Sewers are potent for evil, not for good, if leaky or badly trapped; and many householders, even in the best localities, fail to see that they are well made or well kept. The main sewer system has been greatly improved, and surpasses that of most towns of the United Kingdom. Diseases of the breathing organs destroyed 986 persons; the average for ten years' corresponding sixteen weeks being only 541. The mean temperature of the past twelve weeks was 35.1, or 7 degrees below the ten year average, and this accounts for the high mortality when the circumstances of our vastly numerous poor are considered. Their clothing, especially that of the feet, is bad, and their food scanty, because a great deal of their wages is spent in drink. The police statistics show 4,447 commitments of females for drunkenness in 1876, against 4,045 in 1866, when the population was greater, and many deaths of infants by convulsions can be thus accounted for."

The neglect of vaccination is certainly the cause of some deaths, but why have not the guardians been complained of previously by the sanitary officers of the Corporation if it has been known they wilfully neglected to perform their obvious duties? The condition of a portion of the working poor in Dublin has been for many years the same. Many, no doubt, are ill-fed and ill-clad, and many are so from spending their wages on drink. But Dublin workmen and the city poor had more to spend formerly than recently, and were ill-fed in previous years as well as now, yet the present high rate of mortality was not reached.

The report next deals with the registration of deaths becoming more regular, and by this registration being more perfect it is argued, as a matter of course, the number of deaths is swelled. This argument, however, is applicable to other places as well as Dublin. We have next an argument and some statistics tending to prove that Dublin is charged with a higher rate of mortality than is fairly due, in consequence of numbers of poor persons who come in from the country districts, and are admitted into the

hospitals and workhouses. It is stated that one-fourth of the deaths that occur in public hospitals are those of strangers. We hesitate to believe this bold assertion, and we would like to see some corroborative facts in support of it. If there be a fluctuating population in Dublin, as there must be to some extent, there is also one in respect to other large cities. It is next pointed out the ages of the Dublin population is a factor in producing its high death-rate, and that the proportion of the population between five and fifty years, which is the most healthy, is diminishing, owing to emigration. They emigrate, we are told, to the great English and Scotch towns, or to the colonies, and lighten their death-rate, leaving behind "young children and persons beyond the meridian of life, amongst whom there are everywhere high rates of mortality." This may to a certain extent be strictly true, but we must point out that similar changes are taking place in other cities and towns. Great distress has existed in many English towns for several months, but the rates of mortality in these places have not largely increased in consequence. We are next told in the report that persons of determinate ages have no higher mortality rates in Dublin than in most other towns. A number of figures are given in relation to some English towns, and the report adds:—

"These figures, taken from official documents, show that the death-rate of children during a most unhealthy season in Dublin, was not so great as the average death-rate of children of the same age in London, and that twice as many children under five years old die in Liverpool as in Dublin. Also, that whilst persons aged fifteen to twenty have a somewhat higher death-rate in Dublin than in London, the Dublin rate is exceeded by the Manchester rate, and to a great extent by the Liverpool rate."

Our chief medical officers, if they wished to act fairly, might have pointed out the occupations and habits of the working classes in the great English towns, the smoky factories and foundries, the chemical works, the mines, and the various noxious trades, few or none of which exist in Dublin. Our city has certainly advantages which neither Liverpool nor Manchester or other large towns can boast of. As regards trade the old staple industries of Dublin are decaying—indeed the most of them are extinct. The general industries, which for many years have given employment to a large portion of our artisans, are the building trades, and, on the whole, these are healthy callings, and the members thereof do not contribute much to swell the high death-rate of Dublin.

The report, we must again say, is very disappointing. A courageous attempt has been made to explain away the heavy death-rate, and if it was supported by unerring facts it might have proved successful, and the effort could then be accounted a commendable one. As it stands at present the report is scarcely a partially successful one, and it will go a very little way in helping as a defence of the Corporation. The report, as a whole, essentially fails in the prime objects for which it should aim. It contains no practical suggestions; no work is mapped out for the future; no remedy is proposed; no hope is foreshadowed, and the condition of Dublin is not likely to be one whit better in six months than it was before this report was published.

We have written calmly and honestly, and have used no strong language; but we tell the Corporation of Dublin that the report of their chief sanitary officers will not absolve them from their past neglect, or help them much in future. We have no doubt the chief sanitary officers, in drawing up their report, made the best defence possible, but they have failed where more able men would certainly fail if they proceeded in the same lines. There exists no reason why Dublin should not be one of the most healthy cities in the British Islands, and she would be if she possessed an energetic, educated, and efficient Corporation.



### THE MEDICAL OFFICERS— THEIR DUTIES AND SALARIES.

Dr. C. A. Cameron has published the following in explanation of the existing state of affairs *in re* the Public Health of the City:—

In reference to the question of coalescence of the offices of Medical and Superintendent Medical Officers of Health, now being discussed, it is well that the public should understand exactly the existing state of things. Whilst Glasgow and Liverpool—each with its half million of souls—and all other large towns in England and Scotland have each but one Medical Officer of Health, Dublin has at present seventeen—viz., (1) a "Consulting Sanitary Officer," who is also "Medical Superintendent Officer of Health"; (2) a "Medical Officer of Health"; and (3) 15 District Medical Officers of Health—17. Each of the principal officers has a salary of £300 a-year; the district officers have each £25 per annum—£975 a-year. It is a matter of notoriety that the district officers are dissatisfied with their small salaries, and if they be increased (which I hope and trust may be the case very soon) to £50 a-year, then the total amount payable to the Medical Officers of Health of the city would be £1,350 a-year, which would be in excess of the amount paid for such a purpose in any city of the United Kingdom. If, in addition to these health officers, a new one, as suggested, be appointed at £1,200 a-year, Dublin would certainly be well provided with medical officers of health. In 1874 I was appointed "Medical Officer of Health" for Dublin, under a sealed order of the Local Government Board, and at the same time Dr. Mapother was appointed "Consulting Sanitary Officer." Our duties were defined in identical terms, but, by mutual arrangement, were divided between us. They have been discharged to the best of our ability. A year ago Dr. Mapother accepted, without increase of salary, the new office of Superintendent Medical Officer of Health, the perhaps rather invidious duty of which office is to review the work of the district officers. It is this duty which Dr. Mapother desired to have transferred to me. In conclusion, I beg to state that I am not in the habit of undertaking duties which I am unable efficiently to discharge.

CHARLES A. CAMERON, M.D.,  
Diplomate in Sanitary Science, Cambridge University.

### THE FIRE AT BIRMINGHAM PUBLIC LIBRARY.

We print some of the remarks made by our contemporaries on the recent disaster at the Birmingham Library.

The *Builder* says:—

"A great calamity has occurred to Birmingham in the destruction by fire of the magnificent reference and lending libraries, including the famous Shakespeare library and the Cervantes collection. For some months past, the works in connexion with the extension of these libraries have been in progress, and as these involved the lengthening of the library-rooms, which were situated one over another, a boarded timber screen was erected at the end of each room to form an enclosure while the end wall was removed. This was canvassed and papered on the inside, and in the upper or reference library the book-cases were erected against this screen to nearly its full weight. A gallery ran entirely round this room, and it was lighted by ceiling-lights by day and sun gas-burners by night, the iron pipes to supply which were carried up temporarily outside the screen. The weather having been very cold lately, the gas in these outer pipes became condensed and frozen into ice, which checked the flow considerably. About 1 p.m. on Saturday, one of the gasfitters employed by the Gas Department of the Corporation was employed in thawing these pipes, which he unwisely attempted to do without removal, and with the gas full on in them. By some means not yet explained, some deal shavings which he had taken with him became ignited, and these set fire to the wooden partition, alarming the readers and attendants, who at once put into use a dozen buckets and a hog-head of water, standing ready near the door of the room, but without avail. They then turned their efforts towards securing as many of the books as possible, and succeeded in saving a large number. The fire, however, soon burnt through a wood-jointed pugged floor, into the room below, from which many of the books forming the lending library had been removed, and in which stood the marble statue of the Prince Consort, and the very fine colossal statues, in plaster, of Burke and Goldsmith. It

was at one time feared that these would be destroyed; but by great effort they were saved, and afterwards removed into the new borough offices.

The cold at the time of the fire was so intense that the fire-plugs were frozen, and much valuable time was lost in consequence at the outset, and afterwards, when an abundant supply of water was obtained from a special high-pressure main recently laid down, the water quickly froze on the charred embers, and embedded the ruins in a sheet of ice.

It is intended at once to begin the reconstruction, the means for which will be at once forthcoming, the building being insured in the Lancashire fire-office for £12,000, and the books, &c. for another £12,000, which will doubtless buy a great many books, but not enough, and a further sum of £10,000 is required to be raised by subscription, towards which the sum of £2,750, in six donations, is already secured. The disaster is, nevertheless, irreparable."

The *Athenæum* is of opinion that—

"There has been a good deal of exaggeration in the reports of the destruction of the Shakespearean Collection at Birmingham which have appeared in the daily papers. To speak of it as the most complete in the world is simply to talk nonsense. It comprised a large amount of modern Shakespearean literature, most of which can be easily replaced; it was poor in the early quarto editions, and there was little to render the collection of critical value. A far more serious loss is the destruction of the Staunton Collection. Students of dramatic and of county history will remember the modest house at Longbridge, some three miles from Warwick, where the road branches to Stratford on the one hand, and to Charlecot on the other, where the late Mr. William Staunton lived, and where he gathered together the most complete collection of materials illustrating Warwickshire history existing. Here were ranged side by side the result of the laborious researches of Henry Fencers into family pedigrees, the tall folios in which Sir Simon Archer entered those particulars of county history which Sir William Dugdale freely used in his famous 'Antiquities of Warwickshire.' There were memoranda by the historian himself, and the whole collection of the late Thomas Sharpe, relating principally to Coventry, consisting of cartularies, deeds, extracts from rare manuscripts, memoranda of folk-lore, and notes of dialectal peculiarities. With great judgment Mr. Staunton secured, at the sale of the late Mr. William Hamper, those notes and memoranda which he used in illustrating the famous copy of Dugdale now in the British Museum, as well as those particulars of the county records which occupied so much of the lifetime of Mr. Hamper.

The prints, drawings, and plans have been destroyed. Many of these were rare, if not unique; but the engraved portrait of Sir Thomas Overbury, bought at the Stowe sale, had been previously disposed of. Fortunately many of the scattered memoranda relating to the various parishes in the county which had been collected and arranged by Mr. Staunton have been either copied or notes made of the sources from which they were taken. A great many of the drawings of the old houses had been sketched; but the extensive series of Civil War tracts, the works of Sir Robert Dudley, and the complete collection of works relating to Warwickshire appear to have all perished. Some doubt appears to exist as to the fate of the celebrated medal struck to commemorate the meeting of Charles I. and Henrietta on the site of the battle of Edgehill, the year after the battle. Amongst the manuscripts destroyed are the briefs for the defence in the celebrated "Laurel Water" case, a carefully compiled summary of the events connected with the county, many deeds connected with the Earls of Warwick, and the original vellum deed of the installation of the Earl of Leicester as a Knight of St. Michael. The invaluable records, in many folio volumes, of the Guilds of Coventry were inestimable in the history of our early drama, and of these Sharp and others have only made a limited use. One distinguished scholar, however, had thoroughly explored the collection with a view to investigating the history of the drama, and his notes will now become of unexpected importance. The Catalogue of the collection, which had just been completed, is said to have perished in the flames. The exact losses have not yet been ascertained, but of 70,000 volumes, 10,000, it is supposed, remain. Mr. W. Allingham writes to us:—"The loss of books at the Birmingham Library is, in part, a loss without remedy—a loss such as should be guarded against by every possible contrivance. A plan came into my mind when the 'Pantelmonicon' near Belgrave Square was burned, which is briefly this:—Let treasures which no insurance money can replace be kept on a ground floor, in cases resting upon wheels, and set upon a tramway of stone or

iron running into the open air through a door or doors which it would be easy to make secure when closed, yet handy to open on occasion. A chain extending to the outer door would allow the cases to be drawn out of danger in a very short time, and a slight inclination of the tramway would make this easier. The whole arrangement might be inconspicuous, or even out of sight, and could, with a little planning, be applied to sliding panels for pictures. None of those priceless perishable things that form so great a part of mankind's inheritance ought to be deliberately deposited upstairs, and surrounded by woodwork. The South Kensington Museum runs a great chance of destruction by fire. The National Gallery is far from safe. If we ever build a new one, let it be of good brick, with one floor only, not much above the ground level."

And next the *British Architect* unburthens itself:—

"Perhaps when Birmingham builds herself another library she will adopt the true fire-proof construction of brick or terra-cotta vaulting; or perhaps she will do nothing of the kind. It is quite possible that another building will be reared and filled in time with priceless works only to become in its turn another 'cave of blaze and smoke.' As for the talk about buckets and *extincteurs*, we have no business to require one or the other. Buildings that house treasures so perishable as MSS., books, drawings, prints, and so forth, should be built internally-cased in brick, terra-cotta, concrete, and cement. There is no difficulty about it, except to find an architect who is not hopelessly sunk in a groove. There should be no wood in floors, roofs, stairs, doors, or fittings whatsoever. Stairs should be of tile laid on brick arches; roofs, like the floors, flat—cement on concrete laid on brick vaults; doors of thick porcelain, bronze-mounted, and so on."

### SANITARY JOTTINGS.

At a meeting of the Urban Sanitary Board last week a letter was read from Mr. W. Corbett, C.E., executive sanitary officer, stating that he had been speaking to a member of the Town Council on the 18th relative to an order of the magistrates obtained in April, 1878, against him, to construct drains from four houses; and that the worthy councillor used the following threat:—"I now caution you if you take any steps I will denounce you through the city. I will blacken your character wherever you go, and make you regret the day that you ever became an officer under the Local Government Board!" It was decided that the gentleman should be called upon for an explanation.

The Downpatrick Board of Guardians have approved of the plans of Mr. W. T. Henry, C.E., of Lisburn, for the Ballynahinch Water Supply. The chairman (a major) was of opinion that the cost of advertising for tenders would be an expensive job. As to patronising an engineering journal it could not be thought of for a moment,—even an Irish one!!

"We look in vain for any movement on the part of the Public Health Committee of the Corporation. So far as the papers inform us, all is lethargy, inaction, and *sang froid* in that body. We have, of course, the usual weekly report in which the Superintendent Medical Officer made a feeble and somewhat ridiculous effort to make things pleasant by laying the 110 extra lives lost to the blame of the weather, and we have the usual record of prosecution of a dozen or two hopeless and helpless paupers for infringement of sanitary law. They, poor creatures, whom the Public Health Committee has nurtured for all their lives in the lap of stench and misery, and whom it now punishes for being what they always were. Of any work which may, even remotely, tend to improve the condition of affairs, we hear not a whisper, and we should not have known that such an organisation as the Public Health Committee existed but for the notoriety they have achieved by their contemplated job. The time has, we really think, at last arrived when the citizens must take the matter in hand for themselves. What are they waiting for? Is there any grand scheme of sanitation incubating? Is there the dimmest glimmer of hope that the Public Health Committee will give itself any trouble about the matter. Has not the occasion arrived for a unanimous and influential memorial to the Local Government Board to assume the functions of the committee, and, in virtue of their legal powers, carry out those sanitary reforms which the committee is helpless or unwilling to effect?"—*Medical Press*.

At the Kingstown Police Court on Thursday several summons cases from Dalkey were heard, and fines of 20s. with costs imposed in some of them.



## CLEANSING THE FOOTWAYS.

On this subject Dr. Jolliffe Tufnell writes to a morning contemporary:—

The plan which has been adopted upon the north side of Merriion-square (and which I have undertaken the management of) is as follows:—viz., a boy has been engaged since the commencement of the new year, who reports himself at seven o'clock every morning to the policeman on duty at Leinster-lawn gate; after doing so he commences at 59 Lower Mount-street, and sweeps from thence the footways and doorways along the whole side of Merriion-square, North, until he reaches No. 1. The crossings from No. 1 to Clare-street and from No. 1 to the Square are next thoroughly cleansed, and he returns sweeping the channel course along the north side of the Square up to 59 Lower Mount-street, finishing with the crossing at Holles-street and the crossing to Merriion-square, East. When this is completed he reports himself to the policeman stationed at the end of Merriion-square, North, who inspects the work, and sees that it is properly carried out. The boy finds his own requisites for cleaning, viz., broom, scraper, and shovel, and he has to finish the work before ten o'clock a.m. For this labour he receives six shillings per week, or a sum equivalent to twopence per house per week—there being thirty-four houses on Merriion-square, North, which, with 58 and 59 Lower Mount-street, make up the number to thirty-six. The general adoption of this plan throughout Dublin (whilst tending in no small degree to improve the present state of the streets) would provide for the support of a number of poor persons, who would thus each be enabled to earn from five to six shillings a week. I beg in conclusion, to state that this system meets with the fullest approval of, and is in every way aided by, the Commissioners of Police.

## PAUPERS (?) AND THEIR COST.

AN application was made on the 15th ult. to the guardians of the Athy Poor Law Union by a woman, lately an inmate in the small-pox hospital, for the price of a gold ring alleged to have been destroyed during the process of disinfection.

Mr. Dunne—Is this the woman who sent in the bill for £12 for clothes destroyed?

Clerk—Yes, the same.

Mr. Dunne—Is she a married woman?

Master—She is not.

Mr. Dunne—I do not know what an unmarried servant woman wants with gold rings; neither can I understand how it could be destroyed during the process of disinfection.

Dr. O'Neill—That woman must have cost the union at least £40!!

Mr. O'Beirne—How on earth was that, doctor?

Dr. O'Neill—From the nature of the dietary she was on.

The Master—She must have consumed several gallons of whiskey.

Dr. O'Neill—I had one patient who was consuming eighteen eggs and a quart of whiskey every day for several days.

In many instances it is the ratepayers, and not the paupers, who are deserving of pity. One striking example of this fact occurred at a late meeting of the Carrick-on-Suir Board of Guardians, when a strong healthy girl, named Peggy O'Brien, was offered a situation as servant in the house of a respectable farmer, with £6 per annum as wages. This she indignantly refused, saying that the lowest sum she would go into service for was £11; and, as she was very comfortable where she was, she would remain there.

## HOME AND FOREIGN NOTES.

During the past year there were over 900 failures in New York, amounting to about sixty-four million dollars.

The silversmiths of Ireland are asked to furnish designs for plate suitable for presentation to H. R. H. the Duke of Connaught on his marriage.

The Dundalk Harbour Commissioners have entered into a contract with Messrs. Wingate of Glasgow for a screw dredge and four hopper barges.

Considerable damage has been done to the new castle of the Earl of Kenmare, county Cork, by a fire which was discovered to have broken out in the butler's pantry by the workmen. Fortunately the supply pipes for water through the house had been completely, and after an hour or two the total destruction of the building was prevented.

**MASSIVE DOORS.**—The outer doors of St. Patrick's Cathedral, New York, are each 15 cwt. weight. They are of white ash, studded with bronze bolts, 15 ft. high and 7½ ft. wide. The edges are 6½ in. thick, and the panels 3½ in. The fixing of them took several weeks.

**THE NAVE ROOF OF ST. ALBAN'S.**—The controversy on this subject has not yet quite subsided. The combatants are firing random shots at each other, and some of these shots are lucky hits, and others are wide of the mark. If Mr. Scott's steep roof aspires to the tower it will certainly be a very pointed expression of evolved "restoration." Perhaps after all the silent forces of nature are at work, and two or three centuries hence by the protection that will be afforded to the concealed roof, the latter will be enabled to manifest itself by again standing alone, to the glory of many and the confusion of more.

**A VOICE FROM DARWEN.**—A building workman and old subscriber to our paper in Darwen, Lancashire, writes:—"In the building trade in this town not many new jobs. There is a prospect of a new town hall and market—the plans are not yet ready; the council decided at the corporation meeting that Mr. Waterhouse, the eminent architect of the Manchester Town Hall, be appointed at a fee of £100 to award the premiums to the three best designs most suited to the required wants." The severe weather for the past six or seven weeks has, according to our correspondent, suspended building operations in his district, and occasioned much distress among the workmen of the building trades.

**THE DEATH OF THE GRANDSON OF VALLANCEY THE ANTIQUARY.**—Through oversight we omitted to notice in a previous impression the death of Lieut.-Colonel G. P. Vallancey, the grandson of the once celebrated General Charles Vallancey the Irish antiquary, who died in Dublin as far back as 1812 at an advanced age. Colonel Vallancey died in the island of Guernsey on the 16th of December at the age of 72. He served in the Indian army for several years. There is now or was lately living a sister and a younger brother of the deceased colonel, and these, if they should be still alive, are the only grandchildren of the Irish antiquary now existing. According to a letter written by the deceased in 1870 before us, there were four sons of an elder brother with those of the Lieut.-Colonel then living to carry down the name of Vallancey.

**GLASGOW HOUSES.**—Dr. Russell, Medical Officer of Health for Glasgow, has prepared a table showing that since 1873 the proportion of dwelling-houses of one apartment has undergone a steady diminution from 32.80 to 29.91 per cent. of the whole, while the percentage of houses of over three apartments has also decreased from 11.11 to 10.78. The increase has been in houses of two and three apartments, the proportions of which last year were respectively 44.31 and 14.99 per cent. The same officer reports for all Scotland, the average death-rate of the quarter for ten years was 19.8, and for 1878 it is 19.3. Compared with the eight "principal towns" (the mortality of whose entire population was 20.7), the mortality of Glasgow for the quarter was exceeded by that of Paisley, which was 32. The mortality of Glasgow was less than that of the "large towns," the death-rate of whose entire population was 26. Compared with 22 European cities (the mortality of whose entire population was 28), the mortality of Glasgow for the quarter was less than that of 19, including Hamburg 27, Berlin 33½, and Munich 35.

**THE "BODY-SNATCHERS" OF DUBLIN.**—An article appeared in a late number of the *British Medical Journal*, giving some "Reminiscences of a Medical Student, &c.," prior to the passing of the Anatomy Act. Incidents are related of the practices of the "Resurrection men" and their fellow-labourers, the medical students; "Bully's Acre," or the old Royal Hospital burial ground, Kilmahain, and a spot known as the "Ca hage Garden," which we believe was situated off Kevin-street. We may add that there were several other churchyards in the city and suburbs, but principally the latter, visited from time to time by the body snatchers in our father's time—old Glasnevin, Drumcondra, and Killester churchyards on the north side, and a few more on the south. We could relate strange tales of the time of the doctors and their agents. A humorous story, if we remember aright, will be found in the *Dublin Penny Magazine* of body snatching and snatchers, the scenes being laid at old Kilharack churchyard, near the strand at Sutton—the graveyard now memorable as the resting-place of the "Sham Squire," i.e., Francis Higgins, the reputed betrayer of Lord Edward Fitzgerald.

**"CLERICAL" CO-OPERATION.**—Our attention (says the *London Figaro*) has been called to the nature of two agreements proposed to be entered into, the first between Mr. C. J. Ribton Turner, managing director of the Clergy Co-operative Association, and Mr. Henry Labouchere, the second between the Association and Mr. Ribton Turner. According to the first, the association is to acquire a property called the Queen's Theatre, in Long Acre, "in consideration of the sum of £48,000, to be well and truly paid to Henry Labouchere, or at least to pay him £10,000 in cash, and an annual rental of £28,000." By the terms of the second, the services of Mr. Ribton Turner are to be secured to the association as managing director, at a salary of £600 per annum, and sundry commissions on gross business done over a certain amount. Probably the subscribers to the association may have heard of these contracts, and are aware that they will have to pay nearly half their capital to Mr. Labouchere for his theatre. We only venture to say that the nature of them must, at any rate, effectually dissipate the notion—which did, strange as it seems, prevail in some quarters—that the association was being started merely with the view of benefiting poor parsons. Mr. Labouchere and Mr. Ribton Turner will, we think the foregoing details prove, get more out of it than a great many poor parsons possibly could.

## TO CORRESPONDENTS.

**UNPROFESSIONAL ARCHITECTS.**—A correspondent might write it "bogus architects." We regret to say the fraternity are rather numerous, and are possessed of many "Yankee notions." They have no scruples about taking on the name to their other callings, architect and undertaker, or auctioneer and architect. Pass them along, rien!—pass them along. Their clients are paying dearly for their whistles.

**STUDENT.**—To your first question, No; to your second, Yes; to your third, We don't know; to your last, Look in Thom's Dublin Directory, and don't be offended at our telling you to think a little before you write to us the next time, and you will thereby save yourself and us some valuable time.

**A WORKMAN.**—Among "Weale's Radimentary Series" you will find a volume or two upon the subjects.

**C E.**—A little further on in the year. In the meantime we will give the suggestion our best consideration.

**RECEIVED.**—J. B. C.—Verax—Tolka—B. A.—T. C. D.—A Tradesman—Temple Bar—M. D.—C. D.—W. R., &c.

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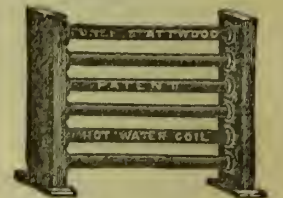
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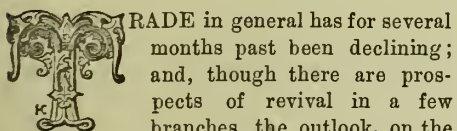
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## THE IRISH BUILDER.

VOL. XXI.—No. 460.

## TRADE DEPRESSION, AND SOME OF ITS CAUSES.



TRADE in general has for several months past been declining; and, though there are prospects of revival in a few branches, the outlook, on the whole, is nowise encouraging. England has been for many years a great manufacturing country, a great producer and exporter of goods and wares, the raw materials of which have existed and still exist to a large extent within her own shores. She has been a large importer also, but until a recent date—apart from articles of luxury—were not such as to give rise to any uneasiness. Ireland for long years has been a draw farm for England and Scotland in the matter of live stock and agricultural produce; but the rapid increase of population, combined with other causes, have gradually forced the sister kingdom to draw large and even increasing supplies of food from foreign countries. The food supply of the present, not to speak of the future, is a serious question, and we fear as time advances it will become a very grave one indeed.

The British Islands, as a whole, and England in particular, no longer, as of old, supplies the markets of the world with her manufactures. Steam power and machinery, which for several years has contributed so powerfully to build the commercial wealth of England by enabling her to quickly produce innumerable articles in various branches of the industrial arts, has become no longer a monopoly to Great Britain. On the Continent, France, Germany, Holland, and Belgium are yearly increasing the number of their foundries and factories, and America—a continent in itself—if she goes on at the rapid pace at which she now advances, will,

with the exception of perhaps a few special articles, cease to import English goods. Not only in articles in which iron and other metals are extensively employed, but in articles of wood and in building and furniture materials, are America and some of the Continental nations beating Great Britain out of her former markets.

A few years ago it was said that one of the causes of the superiority of several of the articles produced on the Continent and imported to England, was owing to the technical education of the workmen on the Continent and through the neglect of industrial education in the British Islands. To some extent, and in particular directions perhaps to a large extent, the above statement may be admitted. In the matter of industrial education we are now endeavouring to make up for lost ground, but technical education in itself, although indispensable to every workman, will not in itself, even in its highest state of perfection in these countries, succeed in winning us back our former extensive trade in the markets of the world. Education, primary and practical, artistic and scientific, is moving apace on the Continent and in the United States; and Great Britain cannot hope to do more for her workmen in her own interest, in the view of the future, than other nations who are or will be equally interested.

As it is, competition in most branches of trade is very rife, and in looking at the progress made by foreign countries within the last few years as producers and competitors, we are almost inclined to admit that there is what is called "over-production" in England. In some branches of manufacture there has been undoubtedly for some time past over-production, and little or no markets exist for the sale of the articles produced, except at a loss. Manufacturers and large employers of labour are laying blame in many directions on the shoulders of British workmen for their ever-increasing demands and their ruinous "strikes;" and while recriminations are going on on the side of employers and employed, the foreigner is driving home the wedge of competition. Labour is undoubtedly cheaper in several European nations than in England, and many articles can be produced, their freight paid to England, and afterwards sold at prices that would not cover much more than the cost of the labour of production alone in these countries.

Putting aside altogether the question of the quality of the goods, which in some instances is said to be inferior and in others superior,—we fear that the god of cheapness has so much taken possession of many British hearts that the cheapest articles, if at all near the mark, will have more inducements for a very large class of the purchasing public, than the better article, though the latter may be home made. While it must be acknowledged that excellent articles of various kinds in many branches of trade are produced in Great Britain, on the other hand it cannot be denied that "scamping" is not confined alone to the building trade, but exists more or less in all branches of manufacture. We all know that houses are scamped by unprincipled builders, that ships are scamped, and even railway works and plant. A few moments' consideration will convince any intelligent person of a little experience that the clothes we wear, the food we eat, the liquids we drink, and a variety of other

articles necessary to life and domestic comfort are also openly and unblushingly scamped. Indeed, as we have more than once written, we are cheated in every direction, despite of sanitary and adulteration acts or other acts passed with a view of preventing the obtaining of money under false pretences.

In sooth, from our very cradle to our grave one matted and interlocked system of fraud and perfidious deception exists for entrapping and artfully robbing us. The plunderers may not have conspired with the intention of injuring any individual in particular, yet the outcome of their nefarious practices amounts to the beggary, the poisoning, and also too often to the inevitable murder of thousands of innocent persons. In a manufacturing nation where such downright dishonesty exists as we have indicated, what is to be expected? If we manufacture by wholesale fraudulent goods, of which British courts of law weekly supply us evidence, what can we expect in return? If we systematically rob by our export trade, depend upon it we will be robbed in our imports in quantity as well as quality, for exact weight and measure are not in these days criterions of justness, no more than appearances are of the quality of the article.

Want of employment in England has given rise once more on the part of the rich and well-to-do classes to the panacea of emigration. Even some English statesmen and lords advise the working men of their country to emigrate—an advice that might be well to take under some conditions. Love of country is, however, a strong instinct or feeling in the breasts of most men, and comparatively few voluntarily expatriate themselves, and rarely the lords of the soil. The emigration that took place after the Potato Famine in Ireland, and which continued for several years, was more or less compulsory. The people would not have left their native country if they could have remained at home. Many farmers and tenant farmers would, no doubt, have emigrated, but a vast number of the agricultural labourers and the working classes in the towns would have stayed at home if employment could have been procured, or if the public works which were projected by the Government at the time had been honestly and efficiently carried out. The money voted for the Famine works in Ireland was altogether out of proportion with the extent of the misery, and the sum should have been more than doubled. Under the system as it was carried out, however, it fell little short of what it has been called—a gigantic swindle; and why? Because the direction of the labour and the works at the Famine period was entrusted to grossly incompetent men; and some of the so-called benefactors of the people were moving, self-seeking patriots. The public works of the Famine era were a miserable failure. There are many big landed proprietors in England and Scotland who would, no doubt, prefer to see several thousands of the working classes emigrating at present than remaining at home, as they believe there is a surplus of labour; and, however they might feel disposed to advocate projected works on the part of the Government, they feel nowise disposed themselves to try the experiment of putting their immense areas of waste land under cultivation, and thus provide work for the idle in their district, with no eventual loss to themselves. Thousands of small



farmers and labourers have been forced to emigrate from Scotland within the last twenty years, and some of the owners of the soil have partly assisted the emigrants; but we fear that in some conspicuous cases the motives of the lordly landowners were not purely philanthropic ones.

It may be said that we cannot increase the size of the three kingdoms, broadly speaking; but we can, notwithstanding our ocean boundaries, win back from the dominion of the tides thousands of acres of slob lands and foreshores, and in a very short time put them under cultivation. Inland too, how many thousands of acres can we not win back from mountain waste, bog land, and morass. Added to this, numerous are the lordly landed proprietors of the three kingdoms, who have their thousands upon thousands of acres uncultivated, sheep-walks and shooting grounds. Sheep-walks it may be said produce money, no doubt; but efficient farming produces more, and no circumstance that we are aware of can morally justify the large landowners of the three kingdoms in keeping from year to year in their present barren and unprofitable condition the immense tracts of land they hold. Largo gardens and walled parks, lakes, ponds, and long extending avenues and plantations may be necessary accompaniments to lordly wealth and power, but outside these and with several hundred more acres added, the lordly owner is unsatisfied. A half county or a whole county is insufficient for some lords of the soil, and many of these owners prefer to see their lands and keep their lands as grazing grounds, and fields waving with corn or other eatable produce. The importation of foreign cattle annoys these landowners, for it tends to the reduction in price of their own in the market, but they do not oppose the importation of foreign corn. A time will come yet, and it may not be so distant as some men think, when the greater part of these broad acres alluded to in the three kingdoms will have to be put under cultivation, either by the owners or by tenants under the owners. As we write, several hundred of English agricultural labourers are leaving England, the immediate cause being a reduction of wages sought to be enforced upon them by the farmers under whom they worked. Sooner than submit to a reduction of one shilling in their wages, which they considered too low as they stood, these labourers have elected to leave England with their wives and children, to commence the struggle of life again in the distant colonies.

At the present moment employers and workmen in England stand face to face, each watching each other's movements, and each bent on turning his position to the best advantage. The pinch upon the former through the depression of trade has interfered with his usual profits, and with his luxuries perhaps; and many, if not all of them, try to square matters by reducing the wages of their workmen or the cost of labour. The workman naturally resists, and he not unreasonably complains in some instances, for he thinks it hard that the reduction should take place at the lowest rung of the ladder. The best advice that we can offer to the employers and workmen at this trying juncture in the history of capital and labour, is to bear and forbear, to give and take. British manufacturers, if not beaten out of the market in several of its branches in detail, by foreign competitors, will certainly be seriously

injured, unless employers and employed wisely take counsel together, and by the former resolving to forego a portion of his former profits and the latter consenting to a fair reduction of his wages until better times return. To hold their own, the manufacturers of the British Islands must produce as cheaply and articles of as good a quality as their competitors abroad. By no other means, as far as we can see ahead, can they expect to obtain a market for their manufactures. We cannot force our wares upon any country which does not desire them, and if we succeed in developing new industries and opening new markets abroad or in distant countries, other countries will follow us and successfully compete with us, and as they are producing at a cheaper cost of labour they will continue to outsell us, driving us to the wall everywhere.

We are unable to exhaust our subject in one article, but we may find occasion to resume it shortly. The interests of the manufacturing towns and the workmen of the British Islands in the land question is a growing and burning interest, and it cannot be much longer ignored by our legislators.

#### ENGLISH AND AMERICAN LOCKS.

In our last and a preceding issue we gave some particulars of the controversy that has lately arisen on the subject of American as against English locks, and we also made some remarks on the question and its surroundings, or rather its bearings on the building trade. A number of the English lockmakers—owing to the adverse criticism that has taken place—have felt it incumbent upon them to speak out, and, as a matter of justice, we give their statements an increased publicity in this country. They say:—

“For a week or two past considerable discussion has been carried on concerning the above, increased very much by the publication, in a contemporary, of a letter sent by Colonel Wrottesley, of Woolwich. The writer of that letter (Mr. Hill, a factor) there states: ‘I have supplied all the locks for a large hospital at Walsall, within a stone’s throw of where locks are made. Yet these locks of mine came 3,500 miles, and cannot be equalled in this country,’ &c. This is sheer nonsense.

By permission of the committee of Walsall Hospital, a deputation of manufacturers from Willenhall and Walsall met, on the 28th ult., in the committee-room of the hospital, and in the presence of the secretary and others fairly examined the locks, and report as follows: ‘The locks were taken from the doors and brought to us by a workman employed by the hospital. We examined one of each kind of locks, and although they are stated to be all American—“My locks came 3,500 miles, and not to be equalled”—yet,

The first was a Willenhall lock, an ordinary 8-in. drawback. The maker was present, and stated that the merchant’s price for this lock was 3s. each net. The price charged to the hospital was 4s. 3d. each net.

The second was also a Willenhall lock, mortice, but of a very common quality. The merchant’s price for this lock would be 2s. 3d. each net; they were charged 4s. 10d. each net. The furniture for this lock would cost, merchant’s price, 1s. 9d.; it was charged 2s. 10d. for each.

The third was an American lock, common cast-iron entirely, save spring and key; thrown once against the wall it broke to shivers. No machinery is used in the manufacture of this lock, and no special skill is required. Locks almost identical have been made in Willenhall for fifty years. This was the only kind of American lock in the hospital. These locks can be obtained in Willenhall in any quantity. The merchant’s price for Willenhall locks similar to these is 1s. 8d. each net. They were charged to the hospital 3s. each net.

The fourth was again Willenhall manufacture—a cast-iron latch. These were sold to Mr. Hill for 7d. each, and charged to the hospital 1s. 6d. each net. The maker was present.

The fifth was again a Willenhall lock—cast iron—similar to the American, but with wrought iron

covers, and all the inside work brass and malleable iron, and therefore more substantial and durable than the American locks. These locks were made and supplied to Mr. Hill by Willenhall manufacturers.

The whole of the furniture to all the locks was made at Wolverhampton, and is “Mace’s patent,” not Hill’s, as advertised.

The total number of locks in the hospital is 115: Six of these (the plate locks) were made at Walsall, fifty at Willenhall, and fifty-nine were American. The whole of these American locks were of the kind described, viz., common cast iron within and without. With the exception of the plate-locks and a few of the better Willenhall locks, the locks and latches on the hospital are no credit to the place. Neither the committee, however, nor the builder had any part in choosing them, as Messrs. Henman, Harrison, and Perret, architects, specified Hill’s locks throughout, and the facts given above show the result.—(Signed.)”

In answer to the above statement, Mr. James Hill, of Thames-street, London, writes to say:—

“When the first order came to hand I had not begun to receive consignments of the American locks in question; but, as soon as they arrived, I submitted samples to the architects, and they unhesitatingly decided in favour of them for the remaining portion of the contract. This applies more particularly to my registered rim-locks; and, out of a total of eighty rim-locks supplied, only sixteen were of English make. . . . After all, it is only a question of degree. The broad and stubborn fact remains that sixty-four American locks have been fixed in an English hospital side by side with English locks, and ‘within a stone’s throw of where locks are made; and it is also undeniable that the architects preferred the American locks to the sixteen previously supplied.’”

The controversy, we dare say, will not be allowed to rest where it is, but will be carried much further. Locks are only a single branch of manufacturing ironmongery, and even in respect to building wants alone the articles required are very numerous. We will acknowledge again, as we have before, that there are a number of excellent locks manufactured in England, but side by side a very large trade is done in producing and pouring in on the British and Irish markets a huge mass of worthless articles of building and domestic ironmongery. We have indicated previously in what direction this low class building ironmongery is mostly utilised. There are two kinds of American ironmongery as well as British, and Yankee ingenuity is quite equal, if not superior, to English in trade artifices. There is a plentiful supply of American as well as English cheap and nasty goods upon the market, but at the same time it should be known that some American manufacturers are fastly developing a trade in several articles of building and domestic ironmongery of good quality, and at cheaper prices than the English manufactured goods. Invention and speculation would seem to be more rife in the United States than in England, for novelties are constantly produced. Though by the aid of machinery locks and other articles may be produced in the States, all counterparts of each other in constructional details, yet as soon as the American speculative manufacturer sees he has exhausted his market by the sameness of his wares, he produces another new novelty, or an improvement upon the old. Thus the American, as also some Continental manufacturers, in certain branches of trade, are able to catch and hold the market, for the spirit that actuates people to adopt new fashions in respect to clothes more or less influence them in other directions. This constant changing is an expensive game to play at however, for whether a branch of trade be exclusively worked by hand labour or in



combination with machinery, it requires great resources, and little less than a monopoly in a special branch of trade, is indispensable to ensure success in its pursuit.

#### LORD KINGSBOROUGH'S AND OTHER ANTIQUARIAN WORKS.

AMONG the 10,000 volumes comprising the library of Mr. Adolphus Cooke, of Cooksborough, the sale of which commenced on the 30th ult., in Dublin, there was one work the brief story of which possesses more than ordinary interest, particularly for Irish readers. Although the library contained several volumes on antiquities, home and foreign, and works of native writers, historical and architectural, from Swift to Petrie, yet the principal work which attracted attention at the sale was Lord Kingsborough's "Antiquities of Mexico," in 9 vols. royal folio, plates in colour and gold. Beyond the printing and binding of the volumes, and even their literary value, the work of Lord Kingsborough had a special interest—melancholy if you will—but nevertheless remarkable.

The author, Lord Kingsborough, who was born at the close of the eighteenth century, was the eldest son of the Earl of Kingston. He appears to have early evidenced literary and antiquarian tastes, but Mexico instead of Ireland was to be the scene of his literary and antiquarian zeal. He resolved to devote his life to the preparation and publication of a work on the antiquities of the former country. He set out for Mexico in the early years of the present century, and after much time and labour were expended, he produced his "Antiquities of Mexico." The nine magnificent volumes were published at the price of £235 10s.

Prescott, the great American historian, has spoken of Kingsborough's work as a "munificent undertaking which no government probably would, and few individuals could, have executed, which entitled its author to the lasting gratitude of science." Prescott himself wrote a valuable work on Mexico, and was well entitled to be heard.

It is stated that Lord Kingsborough expended £60,000 in the production of his work, but some have put down the amount at considerably less; one thing is clear, that he devoted his fortune, nay his very life, to its completion. After having exhausted all his means he was arrested in Dublin at the suit of a paper-maker, and, while confined in the Marshalsea Prison, he contracted a fever and died in a few weeks. His end became more sad when it is recollected that if he had lived a few months longer he would not only have inherited the title of the Earl of Kingston but the income of £40,000 a-year.

Lord Kingsborough was not the only Irish author in the last and present century who devoted his time to the production of works on foreign antiquities, while a vast and interesting field remained but partially illustrated at home. For some years preceding the era of the Irish Parliament, and throughout that era, considerable antiquarian zeal was certainly manifested in Ireland. Apart from the antiquaries who performed the literary works undertaken at the above era, there were some noble patrons who advanced moneys. Among the latter class was the Right Hon. William Conyngham of that day. This patron of Irish antiquaries assisted a young Irish architect (who afterwards became somewhat distinguished) of the name of James Cavanah Murphy to visit Portugal. The result of Murphy's visit was the production of a costly and well-got-up work with regard to typography and paper—splendid, perhaps, for the time, though the work in part contains a most curious exposition of the origin and principles of Gothic architecture. The title of the work, which was published about the year 1792-3, was—"Principles of Gothic Architecture from the Designs of the Church and Royal Monastery of Batalha, Portugal; with an Historical and Descriptive Account of the Famous Structure; Translated from the Portuguese of

Father Lewis de Sousa; to which is Prefixed an Introductory Discourse on Gothic Architecture." Murphy subsequently produced other works on Portugal and Spain. His "Arabian Antiquities of Spain" contains ninety-seven fine plates, and among them a number illustrative of the Alhambra.

Murphy's patron also assisted the nephew of Grose, the antiquary, along with the Rev. Edmund Ledwich, to continue the "Antiquities of Ireland," Captain Francis Grose, the uncle, who commenced the work, having died in Dublin in 1791, shortly after the commencement of his literary undertaking. Towards "Grose's Antiquities of Ireland" Mr. Conyngham presented a fine collection of drawings associated with the names of Barralet, Wheatley, Bigari, Penrose, and other artists of the time. Of the descriptive portion of Grose's work or of Ledwich's own work on the antiquities of Ireland, and of the opinions expressed by the latter, we don't desire to say anything now, as we have more than once in these pages stated our views, and pretty plainly. The works have their value, however; and though many of these statements have been invalidated, the architectural illustrations remain as evidences of what once existed and still exists in several instances, though under changed conditions.

The above remarks, suggested by the sale of Lord Kingsborough's great work, are written *currente calamo*, and are merely intended to show the often curious influences that have a bearing upon the production of some works, and the direction of the tastes of some men. Several instances, however, could be brought forward of Irish genius in architectural and antiquarian fields, directed into a foreign channel.

#### WORK, WAGES, AND STRIKES.

THE trade depression in England has been very severe for some months past, and has resulted in the reduction, and still further threatened reduction, in the wages of workmen. Various branches of trade are affected, and, as is natural, the workmen in numerous cases have refused to accept a reduced wage and have "struck" work. The workmen in the building trades of the sister kingdom have had their wages reduced a  $\frac{1}{4}$ d., and in some instances a 1d. per hour (including a previous reduction). A great strike of sailors and dock labourers took place in Liverpool within the last few days, and in the London district a partial strike has taken place in the engineering trade, in consequence of a notified reduction on the part of some employers. We fear ticklish times have come for several branches of manufacture in England, and to minimise its effects, even if it should only be limited in its duration, it behoves the employers and the employed to take friendly counsel together, and not hold out on either side to any "hard-and-fast line" for the purpose of triumphing over each other. The proverbial illustration of the tactics of the fox has at this moment a special force for those who are not blinded to their own as well as their country's interest. While masters and workmen are quarrelling over the bone of contention the foreign competitor is watching his opportunity, and when or before the foolish combatants have exhausted themselves the prize for which they fought will be carried off by the astute foreigner, and the home trade which was once the glory of the British Islands may become the shadow of its former importance.

#### THE TIMBER TRADE IN 1878.

Messrs. Farnworth and Jardine, Liverpool, have just issued their annual circular, in which they remark that "the timber trade during the past year forms no exception to the general dulness of trade experienced throughout the country, and has been one of depression and low prices; at no period have prospects been such as to induce dealers to buy with any feeling of confidence, not-

withstanding that prices were generally below the cost of production, and also for most of the leading articles, lower than at any other period during recent years. The consumption has fallen off seriously, being 18 per cent. less than in 1877; in colonial timber the consumption shows a remarkable falling off, being 38 per cent. less than in 1877. The aggregate stock is 20 per cent. less than last year. Considering the commercial troubles we have already experienced, and the great check given to all building operations, which will naturally tend to curtail business for some time, we must look for a sale of consumption much below what we have had for several years past; present stocks must therefore be considered more than ample to meet this altered state of trade. Of Quebec yellow pine there has been a remarkable falling off in the import, being little more than one-third of the quantity received during previous year. This has enabled us to reduce the very heavy stock held a year ago to a more moderate compass, but which is still fully equal to an average of previous three years, and amply sufficient for any probable demand. It will be noticed that the consumption has fallen off 34 per cent. during the past year, and is by far the smallest we have ever recorded; for prime square pine prices have been fairly maintained, but for fair average and common qualities there has been little demand, and very low prices have ruled. Red pine, unless of large size and prime quality, has rarely been asked for, and the consumption of this wood has now become limited. The import of pine deals has been little more than half of last year; there has been a very fair consumption (though 16 per cent. less than in 1877) induced, in a great measure, by the low prices that have been accepted, leaving us with a reduced but ample stock; first quality have been in limited request and prices have been low; second quality, of good dimensions, have been scarce, and prices have been well maintained; but a large portion of the import has been of third quality and odd dimensions, which have been sold at low prices. The import of spruce and pine deals has been less than last year, though still much beyond the actual requirements of the trade, consequently there has been a continual pressure on the market, and prices—which opened at about £7 7s. 6d. to £7 10s. for St. John, and £6 15s. to £7 per standard for other ports—could not be maintained, and prices gradually fell to the lowest point of £6 10s. for St. John, and £5 15s. to £6 for lower port spruce, being the lowest prices known at almost any former period. At one time it was thought that we should close the season with a light stock, and holders were inclined to be firm, but large arrivals continued to come forward late in the season, and we are left with a stock much in excess of last year. The consumption has been 14,000 standards less than last year, and with the prospect of a further decline, it is of the utmost importance that imports next year should be greatly reduced. St. John pine deals have been very unsaleable. It is satisfactory to note such a large reduction in the import of pitch pine, it being 38 per cent. less than last year, and is the smallest on record since 1870. The consumption again shows a decline, having been 14 per cent. less than last year; but, owing to the more moderate supplies, stocks are less than at the end of 1877, but still quite sufficient for the demand; the necessity still exists for keeping imports moderate, in order to bring the market back to a more healthy condition. On the whole, the business of the year has been unsatisfactory and unremunerative; prices have ruled low, with a downward tendency, the late sales being the lowest of the year."

On the 5th inst. a sale of round timber was held at Dromantine, Co. Down, the property of A. C. Innes, Esq., D.L., for which there was a spirited competition, and good prices were realised. There were in all about 350 lots submitted by Mr. C. A. Mark, auctioneer, Newry.



### ST. MARY'S CONVENT OF MERCY, BUTTEVANT.

This building, which was formally opened on Sunday, 9th inst., occupies a fine site on the western bank of the Aueg, and within a stone's throw of the ivy-clad ruins of Buttevant Abbey. The style is Domestic Gothic, and the building, with its pointed gables and massive chimneys, has a very pleasing effect.

The material used is local limestone, with Youghal bricks in jambs, arches, and chimneys, cut-stone sills, &c. The internal exposed woodwork is of red pine stained and varnished, and all exterior walls are battened. There is every accommodation for a community of 18 nuns, and a pension school to accommodate 100 pupils. The drainage, water supply, and ventilation, have been carefully attended to, and are giving entire satisfaction. Mr. G. C. Ashlin was the architect, and Mr. P. F. Monahan clerk of works. The cost was about £3,000.

### NEW BUILDINGS, NORTHERN RAILWAY TERMINUS, AMIENS-STREET.

It is a source of considerable satisfaction to us to observe the improvements which are being effected at the several railway stations in Dublin; and, though these much-needed improvements have been too long deferred, it is gratifying to find that the public will soon enjoy the advantages of increased facilities and comfort in travelling, and the luxury of a change from the proverbially wretched accommodation that has hitherto existed at several of the most frequented termini in Dublin.

We shall notice these several works from time to time, and at present describe some of the changes being made at the Amiens-street Terminus of the Great Northern Railway. The amalgamation of the several lines forming the northern system of railways led to the necessity of extending and improving the accommodation at the Dublin terminus, and extensive works have been for some time in progress in improving the platforms and approaches, &c. These works will be noticed by us when they are sufficiently advanced; we will confine ourselves at present to a description of the new buildings just completed for offices, and which forms such an important feature in connection with the original station.

The new building, which is erected on the large plot of ground in Amiens-street below the present station, and separated from it by the roadway to Sheriff-street, forms a rectangular block of 100 ft. square and three storeys high. It is connected with the present station platform at one side, leaving three sides detached, each of which presents a handsome elevation, which, though built of a different style and material, is so designed that its leading features harmonise with the original building. We have no doubt that when the works at the new platform are completed, something will be done to improve the unsightly bridge over the Sheriff-street road, and thus form an additional connecting link between the old and new buildings.

The new building was erected to provide accommodation for the official staff, who at present occupy unsuitable apartments, which will be required for other purposes in connection with the proposed enlargement of the station. The new buildings present three handsome fronts towards Amiens-street, Seville-place, and Sheriff-street, respectively,

the facing of the walls being of red brick, with dressings of brown stone, the similarity in colour of the materials gives a sombre colour to the edifice that detracts from the effect, and it is to be regretted that limestone dressings were not used, as originally intended. The want of contrast has, however, been compensated for by the very judicious treatment of the design and the excellence of the workmanship. The basement storey is of freestone ashlar, the two upper storeys are of Belfast red bricks, with bands, string-courses, and arches of Dumfries stone, the whole surmounted by an open balustrading. A handsome square tower on the angle next the old station, rising to a height of about 25 ft. over parapet, helps considerably to relieve the flatness of the roof line, and forms a leading feature somewhat similar to the tower on the old building.

The basement storey is surrounded by a wide sunk area, which is protected along street line by a massive cast iron railing by MacFarlane, Glasgow. The approach to the new building will be paved with the new patent wood paving. The main entrance is at the Sheriff-street side by a massive and handsome porch leading to the vestibule, from which the principal apartments are reached. The tympanum over entrance doorway is carved with the company's coat of arms, and floriated designs in the spandrels. On entering the vestibule one is immediately struck with the very superior style of the workmanship,—the massive oak doors having the upper panels filled with plate glass, the pilasters and eaps of Keene's cement, the niches, and arches, all shew a care and finish not usually met with. A porter's room is situated close to the entrance porch, and a separate stairs leads to the basement floor, which is spacious and airy; it contains the apartments of the housekeeper, stationery stores, clerks' rooms, strong rooms, lavatories, &c., all of which are well lighted and heated. The several rooms in basement are arched over with Dennett's fire-proof arches. The ground floor on level with the vestibule has a large central hall, 20 ft. square, open to roof, and having an open gallery round on first floor. The staircase opens off this hall, and is beautifully and skilfully arranged. The massive iron ballusters have a handsome capping of walnut. The walls round the central hall, the stairs, vestibule and corridors, have arched recesses with pilasters and arches executed in Keene's cement, and ornamental caps. The effect of the continued series of pilasters and arches present a rich and pleasing effect. The recesses in hall have circular medallions, which are intended to be filled with carved subjects. A massive lamp-post stands in centre of hall, and the roof light is of coloured glass.

The principal apartments on the ground floor are: the committee room, 33 ft. by 20 ft.; accountant's room, 33 ft. by 20 ft.; secretary's room, 20 ft. by 18 ft.; engineer's office, 39 ft. by 16 ft.; also rooms for assistant secretary, assistant engineer, committee room, safes, &c. These rooms are highly finished with panelled ceilings, and heated throughout.

The upper floor contains the board-room, a splendid apartment, 44 ft. by 28 ft. and 20 ft. high, with a massive open roof, and fitted up in the most tasteful manner. The other apartments on this floor are: the audit office, 52 ft. by 20 ft.; cashier's office, traffic man-

ager's office, and strong rooms, &c. The lavatories and water-closets throughout are fitted up in a superior manner. A corridor connects this floor with the railway platform. The floors of hall and corridor are tiled with Minton, Hollins, and Co.'s tiles.

The whole of the works were carried out from the designs of the architect, Mr. J. Lanyon, F.R.I.B.A., by the Messrs. Fitzpatrick, of Belfast and Dublin, builders, to whom too much credit cannot be given for the manner in which the works have been executed, Mr. William Gilmer being the efficient clerk of works.

A new engine shed has also been erected by Messrs. Fitzpatrick; but we will reserve a notice of this until we describe the general improvements at the station.

### "DANGERS TO HEALTH."

At the present time the number of writers on the important subject of Sanitary Science may be put down as legion. The columns of many of the professional journals are weekly filled with letters, in which views diametrically opposite are paraded—many of them being those propounded by amateurs. With a high death-rate in this city, and but a small prospect of a better state of things being brought about by the intervention of the parties supposed to be responsible, it behoves every house occupier to bestir himself so as to be satisfactorily assured that he has not beneath and about his dwelling choked up sewers or badly-constructed cess-pools. If sickness and death are the result of carelessness in such an important matter, it cannot be pleaded that there was a paucity of caution and warning both in our own journal and others.

To draw attention to a work\* just published is our object at present. In it the author has ably brought forward the dangers inevitably connected with defective drains. "The design," he tells us, "which I had set before me is this, to represent pictorially every important fault to which domestic sanitary arrangements are liable, so far at least as my information avails me, or, in the words suggested by a medical friend, to produce a clinical history of the defects to which drains are liable, and to point out the consequences of such defects by instances of the illness produced thereby."

Dr. Teale's work contains fifty-five chapters, accompanied with lithographs, in which the several undreamt-of ways by which noxious gases enter our dwellings are clearly exhibited. The reader of the work will doubtless smile at the execution of some of the pictures. Plate 35 presents a view of a "Sanitary Tube Works" in which is figured a "Jerry Builder" buying "seconds." In concluding his remarks on this scene the author says:—"If this picture has the effect of gibbeting such scoundrels, and making scamped drain-work less feasible, it will have served its purpose"! We hope so too. Of "Jerry builders" a contemporary writes:—"Criminals and assassins they are, though of a class to escape the vengeance of the law." The work to which we have thus briefly drawn attention should be in the hands of every landlord and officer of health. We need hardly express a hope that in a second edition some changes will be made in the general arrangement of the work.

\* Dangers to Health: a Pictorial Guide to Domestic Sanitary Defects. By T. Fridgin Teale, M.A. London: Churchill; Leeds: Goodall.



# PARTY-WALLS: THE LAW AND THE PRACTICE.\*

(Concluded from page 33.)

## DISCUSSION.

THE President, in inviting discussion, said that Mr. Blashill had treated his subject in a singularly clear and lucid way, and had brought forward many points not always borne in mind, and perhaps not generally known by architects.

Mr. Robert Walker said he feared that there was not only a very great amount of ignorance, but a great lack of a due sense of responsibility in dealing with party-walls prevailing among architects and surveyors having to do with property in the heart of the metropolis. The expression "It is only a party-wall!" was too often used as an apology for tampering with party structures. He met with a typical instance the other day. A large boiler was being fixed in some premises, and in order to gain a little more space, a portion of the party-wall was cut away so as to form a recess into which one end of the boiler fitted. When he called attention to this, he met with the rejoinder, "But it is only a party-wall!" Speaking generally, he felt convinced that dealings with party-walls were conducted in a sort of slipshod manner in many architects' offices. He felt deeply on the question, because a jury of his countrymen had taken upon themselves to censure him for allowing two eminent architects to do something in connexion with a party-wall which he had no power to prevent. It was often erroneously assumed by architects that they could do what they liked with the half of the party-wall adjoining the property in which they were interested; but it was not so, any more than that one of two men who were joint owners of an elephant could shoot his half of the animal. A party-wall consisted of two undivided moieties. The Building Act provided that a building owner should not touch the chimney-breasts on his side of a party-wall without the certificate of the district surveyor. But it was an anomaly in the act that it gave no power to the district surveyor to deal with the wall as a whole. The law officers of the Metropolitan Board of Works had supported him (Mr. Walker) in his opinion that, until the district surveyor was called upon to interfere under the Dangerous Structures Act, all the responsibility of dealing with a party-wall attached to the surveyors acting for the respective owners. The Building Act said most distinctly that each party should appoint a surveyor, unless they both agreed upon one surveyor to act for both owners; and in the event of each side appointing a surveyor, the two surveyors so appointed should nominate a third to act as an umpire, to whom all differences should be referred. Where the two surveyors appointed by the owners refused or neglected to appoint a third surveyor, a deadlock would very often ensue, and the only remedy was to go to the Court of Queen's Bench, and get a *mandamus*, or else to make an *ex parte* application to a judge in chambers for an order compelling compliance with the act. If either of the owners did not comply with the act, the best course was to bring the matter before the Metropolitan Board of Works, and to give the owner notice that he would be held responsible for any damage arising from his non-compliance with the law. The whole question of party-walls was deserving of the most careful study. Modern fronts were now carried up in crowded thoroughfares on nothing but iron and glass, and practically the party-wall was the only part of such buildings which had any vital energy and force in it. Good party-walls, in fact, formed the backbone, the sheet-anchor, of such buildings. It was terrifying to see how often heavy superstructures were carried up on iron columns, in conjunction with party-walls that were perhaps two or three hundred years old,—especially in these days of underground railways and heavy sewerage works. The

architect would best study his own and his clients' interests by insisting upon thoroughly sound and unimpeachable party-walls.

Mr. Gilbert R. Redgrave said that Mr. Blashill had pointed out most carefully the way in which the two surveyors appointed by the respective owners were to nominate a third surveyor, who was not, according to Mr. Blashill, an "umpire," although Mr. Walker had spoken of him as such. The act clearly said that the award as to a party-wall must be made by the two surveyors. Mr. Blashill had not stated whether a party-wall extended right through to the face of the frontage. Presuming it to do so, what duty was enforced upon the building owner in case of the adjoining owner requiring particular materials carried up on the exterior?

Mr. J. Douglass Mathews said that every party-wall had its own peculiarities, and although in some cases they did not involve much trouble, in others a great number of questions arose which could only be settled as they occurred. Of course the broad principles to be observed were laid down by the act. In all cases where party-walls were increased in height, all questions arising as to rights of light and air should be kept distinct from those arising as to the party-wall itself. One point which often caused a great deal of trouble was that the Building Act empowered a building owner to do certain things in such a way and at such times as not to cause inconvenience to the adjoining owner. This was an open door for all sorts of difficulties, especially when there were three or four, or more, adjoining owners. Of course, it was an inconvenience at the best of times for the adjoining owner to have his rooms laid open by the pulling down of a party-wall, and it would be exceptionally inconvenient in the present cold season when the party-wall so demolished happened to contain the chimney-breasts of the adjoining owner's house, for, of course, it would preclude fires. The inconvenience attending the demolition and rebuilding of a party-wall was one, however, which the adjoining owner must put up with so long as he enjoyed the convenience and economy accruing from making one wall divide two properties. He had heard that it was likely that a case raising the question of compensation for such inconvenience would shortly come on for hearing, but it was to be hoped that it would not go against the building owner. In the demolition of old party-walls it was necessary to exercise the utmost care, as sometimes the chimney-breasts were carried on either side of the wall in such a way as to make those on one side balance those on the other. He thought that, all things considered, the provisions of the Building Act as to party-walls were pretty clear and distinct.

Mr. S. F. Clarkson said that chimney-breasts built against party-walls, although they were bonded into party-walls, were not part thereof. The building owner, or the person who wanted to deal with his side of the party-wall, must not do anything that would imperil the safety of the structure without notice, and the purpose of the notice was clearly that the adjoining owner should make provision for his own interests. But the act should not be unduly strained, for although it was very properly not allowed to the building owner to do anything to a party-wall that would endanger its stability or inconvenience the adjoining owner, nevertheless it was allowable to do a great deal of work upon a party-wall. The question of party fence-walls was becoming of increasing importance, and some day or other legislation would be called for to enable them to become party structures. As Mr. Mathews had said, the Building Act was, in the main, a good act, and it was much to be desired that country towns and rural districts should be provided with equally satisfactory legislation, especially as to the rights of adjoining owners in party-walls, such rights being at present most dubious. Mr. Blashill had not mentioned that in London we were going to have practically some new building legislation, dealing with party-walls as well as with other

matters. He should very much like to feel assured that that legislation (which would take the form of bye-laws prepared by the Metropolitan Board of Works in pursuance of powers given them by the act of last session) would be effective without being too stringent. One of these bye-laws provided that party-walls might be constructed of inferior bricks! That provision, taken in conjunction with what Mr. Walker had said, was not very reassuring. Of course the provisions of these bye-laws as to foundations and materials generally would apply equally to party-walls and to external walls.

Mr. Hunter said that the Building Act stipulated that three months' notice should be given to the adjoining owner by the building owner of his intention to proceed to interfere with or pull down and rebuild a party-wall, but, so far as he could see (and he had taken legal advice), there was no power in the act to compel him to proceed with the work at the expiration of the three months. Again, it appeared to be a moot point whether a party-wall which was carried up higher than one of the two properties which it served to separate was a party-wall for its whole height. On this point it seemed to him that Mr. Blashill would have great difficulty in establishing the correctness of his reading of the act.

Mr. Walker explained that he merely used the word "umpire," as applied to the third surveyor, in its colloquial sense. He wished to add that difficulties often arose where one party, having given notice to deal with a party-wall, went on at once without waiting for the expiration of the term. That could be stopped by an injunction in Chancery, on the ground of non-compliance with the act. In the last Building Act for Bristol a clause had been inserted to the effect that if the adjoining owners of a party structure could not agree, the old structure should be pulled down, and each party build a new one!

The thanks of the meeting having been tendered to Mr. Blashill for his paper,

Mr. Blashill, in reply to Mr. Redgrave, said that most undoubtedly a party-wall extended right through to the surface of the frontage, or it would not completely separate the two buildings. In answer to Mr. Hunter, he said the act contained no provision to compel a man who gave notice of his intention to do certain things to a party-wall, to proceed with the work at the expiration of the three months.

## ON CONCRETE.\*

As concrete is so rapidly taking the place of cut stone and rubble masonry—especially in connexion with water-works, such as quay walls and bridges, &c., and also in foundations of houses erected on soft and uneven foundations—a few practical remarks may be of some use.

For some years I have used concrete in the construction of county bridges in the West Riding, County Cork, the span of the arches varying from 20 to 35 ft.; and in one instance, where a foundation could not be obtained without going to considerable expense, I constructed an arch of 45 ft. span, with a rise of 7 ft. 6 in., the thickness of the arch at the crown being 3 ft., and at the springing 4 ft.

Concrete has one great advantage over masonry—viz., after floods a few pounds will repair any damage that may arise to the foundations; whereas in a stone bridge one stone loosened at the bottom of an abutment or pier will often cause the destruction of a great portion, or perhaps the whole of the structure. The foundations can also be constructed in a more simple manner.

The plan I adopt is to drive a row of piles 6 in. x 6 in., 3 ft. apart, marking out the form of the footings, and then, as the gravel is scooped out to a firm bed, placing 1½-in. sheeting as the excavation proceeds. Grass

\* By Mr. Thomas Blashill. Read at meeting of the Architectural Association, London, on the 17th ult.

\* Read at Institution of Civil Engineers of Ireland, February 5th, 1879, by Nathaniel Jackson.



seds will always keep the foundations sufficiently free of water in summer weather to enable the workmen to keep tolerably dry. The water must then be let into the compartment, so as to form still water, for on no account must concrete be put into a space where there is any running water. As large a quantity of concrete as can be made must be prepared in the proportion of two of broken stones—broken so as to pass through a ring 2 in. in diameter—three of coarse gravel and sand to one of cement, and the whole, when well mixed, must be placed gently in the water, through a square tube, so as not to disturb the cement. It is a good plan to divide the space for the foundations into three or four compartments, in order that the concrete may be carried above the water line with as little delay as possible. After the cement has been raised above the level of the water, large stones may be put into the concrete, and the whole well rammed. When the foundation has become firm, the outline of the bridge is to be formed with 1½-in. sheeting, firmly secured, and the work proceeded with. The concrete is now to be made in the proportion of four of broken stones, 2½ of gravel, screened through an inch screen, and 1½ of sand to one of cement, and about one-third of clean, large, rough stones bedded through the work, and all well rammed. When the concrete has been raised to the height of the springing, it is advisable to allow the work to rest as long as possible, as concrete does not come to a full set for months after it has been made, when it is used in any large body. The centreing can now be put up; it must be very firm. I invariably divide the arch into five parts; the haunches on both sides are first executed, the joints always radiating to the centre, then the centre, and, after allowing a sufficient time for setting, the spaces are filled in. The old work must be freely wet before the concrete is continued. Packing is used in the haunches, but not in the compartments. Workmen are apt to be so very careless that I think it better not to run the risk of dirty stones being used; besides, there is more elasticity in the concrete without the stones. As soon as the concrete has hardened, the boarding should be removed, to allow the air to act on the concrete. About six weeks must be allowed before the centres are eased. A careful examination must then be made to see if any cracks have taken place; if so, they will be found to take a vertical direction, generally at the springing. The concrete at the crack must be cut out in the shape of a U, about 6 in. wide at the bottom, and from 12 to 18 in. at the top, according to the depth of the sheeting, and the space carefully filled in with concrete well rammed. The surface of the arch must be finished off with a thin coat of cement and fine sand, in the proportion of 1 to 3, and provision made in the haunches to prevent the ledgment of water. The arch can be either coated with tar, well boiled, or a bed of puddle 9 in. thick, carefully worked over the whole surface. The parapet walls can be either 9 or 12 in. thick, instead of 18 or 20 in., as in rubble masonry. Concrete parapets cannot be thrown down in the wanton manner that the ordinary rubble masonry ones are subject to by idle people and schoolboys, &c. It is amusing to see the attempts to destroy the copings of the concrete bridges, but in no instance have they succeeded in doing any mischief beyond a few slight marks, although in derision they are called "stirabout bridges." Another advantage is the facility of overhelling out angles; also, bridges on the skew can be carried out without any extra expense.

In making concrete, too much care cannot be taken; the materials must be scrupulously clean, and all large, smooth stones in the gravel broken. The gravel, &c., and cement should be first thoroughly mixed when dry, and then gently wet with clean water out of a watering-pot with a fine rose, and well mixed as the watering proceeds. The concrete must not be made too wet—about the consistency of good mortar; it is the general

practice to use too much water and too little mixing when the materials are dry.

There are several cements of superior quality in the market. I have always used the "Vocis" Brand Portland, from the Isle of Wight. Cement for general use should be a little air-set, as it dries more slowly and uniformly when used in water; the cement cannot be too fresh.

When concrete has once partially set on the heard or platform, it must on no account be re-wet—a very common practice with some workmen; it must be thrown away, and fresh concrete made. The platform should be carefully scraped every time it is used.

Another advantage concrete has over masonry is the rapidity with which houses can be erected. Within fourteen weeks from the date of the order to commence the plans, a house containing dining, drawing-room, kitchen, five bed-rooms, and offices, all on the ground floor, was finished and fit to inhabit, being perfectly dry, at a cost of between £800 and £900. This house was constructed with sea gravel.

Concrete houses are dry, warm, and free from rats and mice, as these vermin find it quite impossible to burrow into the walls.

I have also constructed a handsome oriel window for about £20, in concrete, which in ordinary cut stone would have cost from £75 to £100.

In conclusion, I cannot too strongly impress on beginners the necessity of having the material used perfectly clean and sharp; the materials well mixed when dry, then carefully moistened, and mixed to the consistency of strong mortar. That the stones used in packing should be rough and clean, and, before using, well watered, thrown on the concrete, and then well rammed. The concrete should also be well rammed. Care should be taken that a space of fully 3 in. should be between each stone. It is also advisable to try two or three samples of the cement, as cement is liable to be injured by being exposed to wet and damp in its transit.

#### THE FRENCH MEDIEVAL BUILDING TRADE.

FROM the literary researches of M. Fagniez into the early industrial history of France, we obtain several interesting particulars on the various trades to be found in Paris, including these of building; and when we reflect on the noble erections that rose up in these eras to form the French cities, it would seem not out of place if we seek to know something of those who built them. From that very ancient industrial census, known as the *Livret des Métiers*, we find that there were in Paris at the end of the thirteenth century 122 masons, 7 masons' assistants, 86 plasterers, 2 scaffold-builders (*eschafaudiers*), 2 deer-makers, 108 carpenters, 18 stone-getters from the quarries, and, lastly, some *appareilleurs*, described as master-workmen, who traced the stone dressing. Of these, the numbers are not given. There could not have been many; for, according to some, the architect himself sometimes took the duty of *appareilleur*. Indeed, there was no such person as an architect in these days, this term not having come into vogue until the fifteenth century. In the twelfth and thirteenth centuries he was designated as the master of the works, and his office was to trace the plans, calculate the quantities, buy the materials, arrange with the contractors, overlook and measure the work, and pay the men. The architect, therefore, had in most cases clearly enough to do without assuming the duties of *appareilleur*, which was probably done by master stonecutters, as the following extract seems to show:—"M<sup>r</sup> Dreufavier, tailleur de pierre, por avoir taillé et fait l'appareil aux maçons d'un portail de pierre." However this may be, the master of the works had the whole command and responsi-

bility, both as regards material and execution, and particularly in the masonry, over which he exercised a mere personal supervision than over the other details. He left, indeed, the carpentry to the care of a master carpenter, who drew the plans and estimates, though always under the eye of, and subject to alteration by, the master of the works. The latter had to arrange with everybody, as we find him in the records of the building of the College of Beauvais concluding a bargain with a tombstone cutter for putting up and polishing the tomb of Jean de Dormans, the founder; and also drawing a design for the coppersmith, in the shape of a copper crown, for the statue of the Virgin.

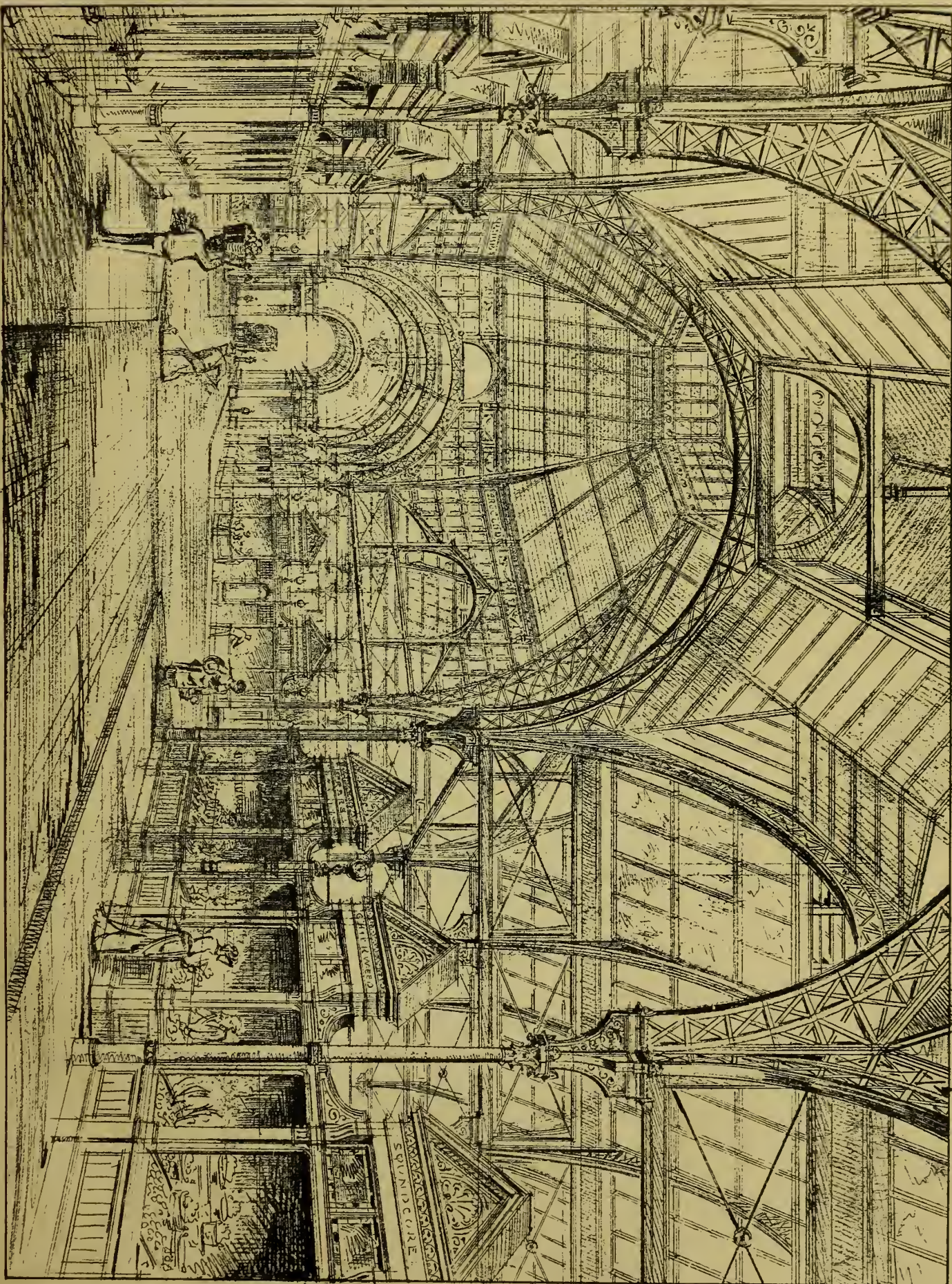
When the master of the works had several jobs on hand, necessitating his travelling from one to another, he had leave sometimes to appoint a substitute, whom he paid so much a day, though it was understood that the latter had no power whatever in any artistic direction, but merely in checking off certain materials or work to be done. In those days the king, the great nobles and religious establishments, had each their own properly-appointed masters of the works, generally one for masonry and another for carpentry, and the supervisors of the royal buildings were appointed personally by the king, and had a distinct position at court, giving up their office only into the hands of the royal chancellor. The following extract tells us that "Petrus Seuchet, varletus camere Regis, ordinatus et institutus magister generalis operum carpenterie regis lece majestri Roberti Souchet vacante per resignationem ejusdem in manibus domini cancellarii factum. Idem Petrus fecit et prestitit solitum in camera juramentum." Moreover, besides their salary and certain gratifications, they had each two horses at their disposal and at the royal household's expense. Indeed, in all building matters it was the custom for the owners of the buildings to testify their satisfaction with well-done work by occasional honoraria. In 1362 the Duke of Normandy gave his master-mason, Raymond of the Temple, 20 francs in gold, and when he became king he made him one of his sergeants at arms, and gave 200 francs in gold, wherewith Raymond's son, Charlet, to whom the king was godfather, and who was studying at the University of Orleans, might pay for his keep and buy books. Louis of Orleans also gave the same sum to Raymond, who, apparently, was in luck's way, for his services as architect of Orleans aux Celestins. Occasionally a good bit of money was made by the masters of the works selling the materials *sub rosa*, and pocketing the proceeds, though precautions were sometimes taken to make this impossible. Of this a case in point happened in 1402, when the materials for one of the royal buildings consisting of wood, lead, iron, carpentry work, scaffolding, glass, and sashes were shut up in a warehouse, with two locks and keys, of which the master of the works held one and the accountant the other, so that any misdeemeanour could only be carried out by collusion between these two. At the conclusion of the operations, the materials which were left were sold by the receivers in the presence of the master of the works, *au prouffit du Roi*. Although in ordinary cases the master of the works was also pay-clerk, the royal household included a special functionary for this office, which was sometimes a confidential one, Philip the Long having appointed his valet to discharge this duty. We find extant one of these certificates of payment, as follows:—"Jehan Frangile, maistre des œuvres de charpenterie du Roy nostre sire, à Guillaume, receveur du Roy, salut. Je vous certifie que Regnault de Gastins, masson, a bien gagné et deserve, et lui est deu sept livres trois sols tournois pour avoir fait et parfait les besonges qui ensuivent. Tesmoing mon seel à ces presents le x<sup>e</sup> jour de Fevrier l'an MCCCXL. et seize."

In cases where an expert's opinion was wanted, the master of the works himself acted, although this was sometimes done by

• Mr. A. J. Aldrich, Talbot-place, is the Dublin agent for this cement.

† From the *Builder*.





COMPETITION DESIGN. SOUTH CITY MARKETS.



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masons and carpenters specially sworn to act (*jurés du roi*). In all building affairs connected with the royal household, there were two of these officials, one for masonry and the other for carpentry, but in other cases we hear of juries of eight or even twelve. They were personages of some consequence, being nominated by the master-mason of the king, and instituted by the Provost of Paris, who administered the oath to them. In 1402 a case occurred in which one Jean Priem disputed the right of Pierre Denis to be properly elected, though the provost confirmed the election, and maintained his right. When Pierre Denis died, there was again a contest, so that it is clear that the office was one of considerable importance in the trade. Various mentions are made of occasions in which the services of this jury of experts were called into requisition, and must have been of decided utility in the government of the city. For instance, in 1326, one Soupicet, a chasuble maker, presented a petition that the jury should assemble and report on the condition of the adjoining house, which threatened to come down and involve his own property in the ruin. The jury came, saw, and approved of the petition, putting their seals to an order that the insecure house, the property of Isabelle de Trambley, should be at once pulled down. Again, in 1334, Philip of Valois authorised Guillaume Judet, chaplain of St. Michel's Chapel, to break through the wall of his house, which adjoined the street of the Grand Pont, and to build there workshops, the receipts from which were to be applied to the maintenance of the chapel; at the same time he gave instructions to his experts to visit the place and report as to where the wall could be pierced at the least inconvenience to the neighbourhood.

#### THE WASTE OF LAND AT BRAY AND KILLINEY.\*

From observations and experiments made during six years, it has been found that the beaches on the east coast of Ireland, between Carnsore, County Wexford, and Dalkey Island, County Dublin, travel with the "flow-tide" on-shore currents. These "flow-tide" currents may be divided into (1) the normal currents, or those on-shore currents that run in a similar general direction to that of the "flow-tide" wave going north up the Irish Sea; (2) counter-tides, or on-shore currents running in an opposite direction to the "flow-tide" wave; and (3) half-counter-tides, or on-shore currents generated by the different headlands; these only flow for a few hours before high-water; sometimes, according to the locality, running contrary to the normal on-shore currents, at other times to the counter-tides.

It was also found that the wind waves accelerate or retard the travelling of the beaches, or cut them out, according to the direction from which they were coming. The wind waves are of two different kinds—viz. (1) "Ground swells," or waves which have been formed originally out in the Channel, or even in the Atlantic, by W., S.W., or S. winds; and (2) waves formed by the winds blowing directly on the coast line. Ordinary wind waves accelerate the travelling of a beach, if the wind is blowing in the same or nearly the same direction as that in which the current is flowing; while they retard the beaches if the wind is perpendicular, and cut them out if the wind is more or less opposite, to the direction of the current. Thus, if an east coast extends N. and S. and the tidal current is running N., all winds that come from points between S. and E.S.E. by E. accelerate the travelling of the beach; those between E.S.E. by E. and E.N.E. by E. pile up "fulls" and "storm beaches," while those between E.N.E. by E. and N. cut out the beaches. The cutting out is due to the "dancing waves" formed by the meeting of the different classes of waves at obtuse angles.

"Ground swells" break on the coast line perpendicularly, or nearly so, usually with an undulating shaky motion that churns up and tosses the beach, thus causing it to be carried away in the backwash; they, except under very exceptional circumstances, cut out the beaches. As the normal on-shore currents and the counter-tides flow in different directions, a wind that helps one must be adverse to the other; therefore, in a bay, one portion of a beach may be filling while another portion is being cut out.

[The lecturer here referred to diagrams shewing the various forms of beaches.]

Beaches may be clean swept out and left empty—(1) by a tidal current, if for a long time there are not contrary storm waves to stop the travelling of the beach; (2) if there are continuous winds that accelerate the travelling of a beach (it may thus be carried away in a short time); or (3), if there are continuous contrary winds that cut out the beach. In any of these cases, if the strand is left empty and a storm comes on, the marginal cliffs are left unprotected and are exposed to denudation. A small storm may have great effect on the marginal cliffs if the strands are empty; while a great storm may have little or no effect if the strands are full. It should be specially pointed out that winds which are most destructive to the beaches may not have any power on the marginal cliffs; the destruction of the latter depending solely on whether the strands are empty or full. So far we have been giving the general rules in regard to the beaches between Dalkey Island and Carnsore; we will now refer more especially to Killiney Bay, that is, the embayment between Bray Head and Dalkey Island.

In Killiney Bay there are four on-shore currents, which principally cause the travelling and cutting out of the beaches:—(1) A current which branches from the "flow-tide" wave coming up the Irish Sea, after it has passed Bray Head, and which runs N.W. ward to impinge on the shore at and to the north of Tower No. 4. Here it divides—a portion going northward, but the principal part (2) forming a "counter-tide" that runs south along the beach to Bray; (3) a "half counter-tide," that sets in a few hours before high-water, and runs westward along the north side of Bray Head, to the south end of the beach near Tower No. 1; and (4) a "half counter-tide" that sets in a few hours before high-water, and runs westward from the south entrance into Dalkey Sound. All these currents carry the beaches with them; the carriage being accelerated, retarded, or stopped by the storm waves, if the latter are, respectively, with the currents, perpendicular to them, or against them. About thirty-five years ago\* the tendency of the beaches margining this bay was to be fuller and more massive than of late years. This seems to have been also the case on the whole coast line between Dalkey and Carnsore; because if we compare the charts of 1845 with the newer ones of 1873 we find that not only are the beaches and on-shore shoals smaller, but that the off-shore shoals have become more regular in outline; while the shoal and awash portions of the latter (above the 3-fathom line) have changed from their massive forms into narrow regular ridges. To this waste of the beaches in Killiney Bay must be added the artificial waste due to the annual carting away of thousands of tons of the beach for road metal and other purposes. To the emptying of the shores is due the great denudation, during late years, of the marginal cliffs from Ballybrack to Tower No. 1; but the denudation from Tower No. 3 southward was further promoted by the works at the mouth of the Dargle River, in connexion with the Bray Harbour. Over thirty-five years ago the mouth of the Dargle River used to shift its position. The usual channel was kept open nearly directly into the sea, but during certain winds this channel was stopped, and the water forced to flow sometimes south-

ward and other times northward, and form others; the situations of these channels being indicated on map. On account of the travelling of the beach southward, the principal channel was generally inclined southward, but, during continuous east winds, it would be banked up, and the water forced to find a passage to the northward. These are the natural directions in which the river would open channels; but here, as elsewhere in the British Islands, the inhabitants, from time immemorial, were accustomed, when the channels were stopped, to cut a direct channel, a few feet wide, across the narrowest part of the intervening sands, which, in a few hours, would be deepened and widened by the rush of the pent-up waters through it.\*

In the second map the black lines show the mouth of the Bray River and its estuary in the year 1854—they are taken from a map of Captain Wilkinson's, R.E., made in that year—while the red lines on the same map show the harbour works as they appeared in 1869; and in another map is given the harbour mouth as it appeared on the 3rd of December, 1878, at full water of a neap tide.† In Wilkinson's map the guts to the northward and southward indicate the ancient sites of the north and south channels.

The direct passage to the sea, opened and kept open by the inhabitants of the locality, only partly affected the natural travelling of the beach, because it had no permanent side-barriers, and during the winter and in storm it was often closed up, and the beach could travel past it. But when the permanent channel, in connexion with the harbour works, was made, things altogether changed. This permanent channel formed a constant stream, in which most of the beach (travelling southward) was caught and carried out to sea. Consequently there was little or no material to replenish the strand to the south of the channel; added to which there was the carting away of what little there was cast up; therefore the beach to the south became empty, and all storm waves swept readily across it. Those from the E. and N.E. impinged on the coast to the south of the channel, and those from the S.E.—which are the most destructive—on the coast to the N. ward, the cliff there being rapidly cut away from the mouth of the river northward to Tower No. 4; causing the Tower No. 3, and the cliff under it, to be carried away, as they were open to the full force of the S.E. storms. The piling, which was driven down to make the channel into the harbour permanent, was carried along the south side only of the channel. But if it had been along the north side, a permanent beach would have formed on the north side of the harbour that would have effectually protected the cliffs from Tower No. 3 to Tower No. 4. If, however, the piling had been so placed it is probable that it would have induced a cutting out of the beach to the south of the channel, as invariably such a structure at the upstream side of a river entering the sea through a beach causes a cutting out at the downstream side. A good example of this may be seen at Arklow, at the south of the County of Wicklow, where the drifting of the beach is northward. Here, on the up-stream, or south side of the piers, the beach has augmented, while to the north, or the down-stream side, even the marginal sandhills have been considerably cut out, as shown, where the black lines represent the shore lines in 1835, while the red lines show the present feature due to the harbour works constructed in 1850. A little south of the Bray Harbour channel a number of groins were constructed to give rise to a beach on the outside of the rampart wall at the north end of Bray Esplanade. These, however, have not been effective; partly because the shingle and sand that

\* At The Breaches, a little farther south on the coast line, the channel was closed by the east wind on Nov. 18, 1878. When I passed the place in the morning some men were opening a cut, 4 ft. wide, which, when I returned in the evening, was over 60 ft. wide. But the continuous east wind had it again blocked up on Dec. 4, when the same process was gone through, and on the 5th there was again a deep and wide channel.

† On this map the mouth of the river, in January, 1879, after the spring tide, is indicated in red.

\* By Mr. G. H. Kinahan, M.R.I.A. Read at Institution of Civil Engineers of Ireland, February 6th, 1879.

\* This limit of time has a reference to the age of the authentic charts.



should have been stopped by them was carted away before it had time to reach them, and partly because they were badly planed.

The harbour works, as completed in 1869, would have been stable and have answered the local trade, if a little care had been taken of them; and especially if the beach to the south of the channel had been preserved. We have already pointed out that on the whole coast line from Dalkey to Carnsore a natural waste or denudation of the coast line is going on; in some places more than in others, the cliffs margining the south portions of Killiney Bay being among those that are more quickly denuded. The beach in this portion of the bay, from Tower No. 4 to Bray Head, is almost entirely composed of pebbles from the marginal cliffs, only about one in a thousand, if so many, coming from the County Wexford.\* Here, therefore, the beach should be not only carefully preserved, but also artificially augmented. This, however, is not the case, as yearly thousands of tons are carted away. This preservation of the beach was far more necessary on the south of Tower No. 3, where there is no marginal cliff; here, however, the artificial waste has been excessive, as the sand and gravel is carted away before it has time even to reach high-water mark. The consequences have been the destruction of the harbour.

As there was no beach to protect the harbour, it was rapidly encroached on by the sea. In 1872 the coal-yard and gas-works to the east of the harbour were dismantled, and in 1876 the harbour itself was breached; while, at the present time, it is a ruin. In a few years more, if some steps are not taken to prevent it, the houses at the north end of Bray Esplanade will also go, as the river is gradually working back into its ancient south channel.

If the harbour is rebuilt, the entrance ought to be from the southward; but it is a question whether the channel should be made north or south of the houses at the north end of the Esplanade. The most effective and best channel, although the most expensive at the outset, would be between those houses and Tower No. 2. Because, if it were thus situated, it would leave a larger space on which shingle might accumulate between the harbour and the sea—thus protecting the shipping from all gales, and the beach between Bray and Tower No. 4 from the S.E. storms. In this situation it would also least interfere with the natural travelling of the beach; while, if the entrance were properly constructed, it would allow to the S.E. gales full power to cut out any bar that might accumulate in the channel.

#### THE POETRY AND ROMANCE OF ARCHITECTURE.†

ARCHITECTURE has the unenviable distinction of being the least popular of all the fine arts, i.e., fewer educated people take interest in it or know much about it. The following remarks are offered with a view of showing something of the attractiveness of its character, and what interest, from various circumstances, attaches to it for all. They were written some two or three years ago, and are the result of impressions of many years' growth.

That architecture should be somewhat less loved and sought after than poetry, painting, sculpture, or music, is, perhaps, not surprising, but that it should be at all slighted or neglected by educated people generally is very surprising indeed. But that it is slighted is a fact, and that great ignorance prevails on it is another; proofs of which abound throughout literature, wherever allusion is made to architecture for illustration

or otherwise. The greatest difference between it and the other arts lies in its connexion with, and sworn fealty to, material requirements, and its necessity of working under restrictions therefrom arising. We see this distinction observed in most styles, including some of the greatest the world has yet seen; in those of Mediæval Europe, for example, in which a prominent aim was to engraft art and beauty on the features of utility and necessity, and to carry beauty into domestic as well as into sacred and monumental edifices. The Greeks, it is true, ignored the principle, and drew a line between domestic and public architecture, regarding only the latter as possessing the rank of a fine art. But surely the course pursued by the Mediævalists was the true way, and most consonant with the method of Nature, who contrives to give to everything, however humble, its modicum of beauty.

The restrictions, however, arising from physical requirements are not so grievous as might be supposed, seeing the most important features of architecture,—doors, windows, &c., are as susceptible of beauty as if they were for beauty only.

In the view I have adopted of it, while all the other arts minister to our higher necessities only, architecture,—under which term I include engineering, for all structural works, bridges, castles, lighthouses, &c., ought to be permeated with the spirit of beauty, and not alienated from the life of art as they generally are,—ministers not only to the higher but to the lower or physical. It is the art of building usefully and beautifully, which, connecting it at once with every part of our nature,—the physical, the emotional, the intellectual,—connects it also with every part of our life, and everything we hold dear, and which beautifies and ennobles life. And with every dream of future happiness you cannot imagine a scene in

"Some bright little Isle of our own"

without some bits of architecture here and there; and the lightest visions that float round the artist's or poet's head are sure to disclose glimpses of snow-white arcade or pavilion, lattice or oriel window peeping through their evergreens and amaranths. A genuine production of architectural genius is in itself an epitome of the world; the author has succeeded in focusing the rays of the universe. It appeals to the entire range of our faculties. Like Nature herself, it has reference to, and is in harmony with, man's entire constitution. His physical wants are supplied by it, as shelter and warmth. It is a means of gratification to our social sympathies. Our understanding, our passions, our imagination, are alike gratified by it. This universality of architecture gives it the precedence of the other arts. It has to go before them and prepare the way. Where architecture is not there is no place for them; at least, in its incipient state, as building, it is the oldest of the arts.

No institution can be established without the aid of architecture. It gives to art its gallery, to science its museum, to literature its library, to education its college and school, to benevolence its hospital and asylum, to religion its temple. It gives also to affectionate memory of the departed its shrine; and it is to architecture chiefly, whose monumental memorials are of all such works the most famous and the most durable, that the great master-spirits of the world, before the invention of printing, trusted for posthumous renown. It is even associated with the future state, for it enters into the account given of heaven in the Scriptures, where we read of our Father's house, and of a river the streams whereof shall make glad the city of God; the wall of which city is jasper on a foundation of precious stones, the pavement of pure gold, and every one of the twelve gates a pearl. It is otherwise figuratively referred to in various parts of the Bible. "In the time of trouble," says David, "he shall hide me in his pavilion; in the secret of his tabernacle shall he hide me."

All this, and the influence of building materials, climate, &c., render architecture, like ourselves, the creature of circumstances, which she is to a greater extent than any other of the fine arts. It is true this material and utilitarian element brings her into connexion with some low offices—kitchen and scullery, and those melancholy necessities of humanity, water-closets, sewers, cesspools, &c.,—and obliges her to call in the aid of certain grossly material and mechanical arts or handicrafts called masonry, bricklaying, carpentry, joinery, plumbing, &c., with soiled hands and aprons. But these are merely her instruments or ministers, who build like Amphion to her music, which render even them more honourable than most other handicrafts, from their connexion with art and beauty, and enables them to boast more than others "the nobility of labour, the long pedigree of toil." Moreover, they are only seemingly, not really, low, being, along with ventilation, heating, lighting, based on or in some way connected with various sciences,—chemistry, geology, algebra, conic sections, geometry, statics, dynamics,—which bring them into relationship with astronomy and the sublimest pursuits of the human mind. They therefore add to rather than diminish the lustre of architecture, which includes more arts within it than any other art.

But if they degraded her, she would be fully indemnified for any loss of dignity by the ministration of sculpture and painting, two superior arts as considered in themselves, who, along with landscape gardening, become her handmaids for the finishing and elevating of her works. Architecture can fully satisfy the mind without their aid,—that is, she is a perfect art in herself, and independent of them, as poetry is of music. But on certain architectural surfaces,—walls and ceilings, pediments, metopes, friezes,—painting and sculpture may bestow their highest efforts, in the shape of pictures and *bassi relievi*, not as independent works, making use of the building as a frame, but in strict subordination to the genius of the architecture, for its embellishment, and for that alone. Such is the sculpture, I believe, of the pediments, friezes, &c., of the Parthenon by Phidias; such are the paintings of the ceiling and walls of the Sistine Chapel by Michelangelo. The Apollo Belvidere, the most ideal god-like statue among the numerous remains of antiquity, may for aught we know have been an architectural ornament. Even poetry may be considered a handmaid of architecture; for she can supply inscriptive matter, giving rhythmic utterance to the sublimest truths for architectural adornment. And not only has the highest art been employed in architectural decoration, but the richest materials,—gold and precious stones, as in tombs and palaces of India, and in the golden house of Nero, for example.

Another distinction of architecture among the fine arts is that her works appear as a second, an intellectual birth of nature, and give as it were the finishing strokes to the earth, over the natural features of which they have the advantage in showing an inside as well as an outside. Such are detached buildings of all ranks strewed over the country,—cathedrals and abbeys, castles, palaces, mansions, villas, cottages, village churches,—which become gems and jewels of the earth, having a magical influence on its aspect. How delightful to cast the eye over a wide plain, studded with these mementos of human life! some time-honoured, others comparatively recent,—one within its own domain of orchard, garden, park, or thickly and lovingly shaded with trees,—another isolated, reminding us of the innumerable ties that bind us to humanity of every grade, and how humanity of every grade is linked to the Hebe-mother, earth and nature, whose love for these creations of man is emblematical of her love for him. She embraces these children of architecture as she embraces her own works, rocks, trees, and hills, as if she recognised them as her children's children. How they rescue the scene from that melancholy loneliness of expression which inevi-

\* From Tower No. 4 southward to Bray Head no pebbles— which must have come undoubtedly from the country south of Bray Head—could be detected in the shingle and gravel; but in the north part of the bay, near Dalkey Sound, they seem to occur, having been carried on to this part of the beach by the deep-sea current that impinges on the beach to the northward of Tower No. 4.

† By Mr. Samuel Huggins. Read at meeting of Liverpool Architectural Society, January 22nd.



tably attaches to scenes composed of natural objects only. How often is an old ruined castle, surrounded by its turrets and battlements, sometimes lighted up by a ray of orange-coloured sunlight, at others half lost in fog or mist, the life and soul of the landscape, the removal of which would produce a mournful and intolerable blank!

This new birth of nature includes some of man's greatest achievements, in which we see him at his grandest, competing (if I may so speak) with his Creator; in some lands embodying a power that seems superhuman, as in the Great Pyramid, the works of the Pelasgi, the Indian cave-temples. These, as indeed some domed and vaulted buildings, as Milan or Amiens Cathedral, or the choir of Beauvais, "a church in the air," for example, which latter shows stone vaulting 167 ft. high, the strain of which is conveyed to the ground by buttresses, if they were to tell their own tale by inscriptions, in the manner of the Moorish buildings, might exclaim, with the Psalmist, "We are fearfully and wonderfully made." Architecture, as in some of the works just mentioned, soars high into the air and burrows into the ground,—and no art does so much to enliven and charm the world, and to enrich it with beauty and sublimity.

As the most interesting objects to man are man and his works, these must always form the greatest attraction of travel. The works of God, it is true, are great, sought out of all those that have pleasure therein; but that "God made the country while man made the town," a sentiment, as I think, unworthy of Cowper, its author, is scarcely a correct view of them,—for God made both; and the town has the advantage over the country in embodying the wisdom of both God and man. Moreover, natural scenery, though it differs with every country, presents a general sameness, and appeals to a comparatively narrow range of sympathies; while the works of the architect show striking change with every country and age of the world; and the buildings of the East are as wide apart in character from those of the West, and the edifices of ancient from those of modern times, as the poles asunder. What is America, with all its gigantic natural features, its dense forests, and mighty rivers, sublime as they must be in the almost uncultivated majesty of nature, in point of human interest, compared with Europe or Asia? What is the St. Lawrence or Lake Superior, or the Falls of Niagara, to the pyramids and temples of Egypt and Greece, or the stupendous sculptured caverns of India? Natural objects are more or less dependent on times and seasons for their attractions; but at no period of the year can these works of architecture be viewed without exciting the liveliest sensations of wonder and delight. In the most beautiful countries of the globe architecture heightens the beauty or sublimity of the fairest landscapes.

"Earth proudly wears the Parthenon  
As the best gem upon her zone;  
And morning opens with haste her lids  
To gaze upon her pyramids.  
O'er England's abbies bends the sky  
As on its friends with kindred eye."

What is there in Hindostan compared to the temples of the Hindoos and the palaces, mosques, and tombs of their Mahomedan conquerors? Its natural productions, the tamarind, the banian, the peepul, with the bright, rich green foliage and lustrous flowers of which temple and tower, pillared arcade, and balustraded terrace are interspersed, may be transplanted and made to grow in the plant-stoves of England, but not the architecture. It is the latter, I believe, more than anything else, that renders the gem-fraught land a land of wonders. The isolated excavated Temple of Kylas, which has been termed the Paradise of the Gods, raises, it is said, mingled emotions of pleasure, amazement, and reverential awe in the breast of the most stolid visitor. What is there of natural feature in France compared to the great Mediæval cathedrals? What amid the charming scenery of Andalusia could

conjure up fairy scenes like the halls and courts of the Alhambra? What images more impressive does the name of Egypt and the Nile call up to the imagination than Karnack, Luxor, and the Memnonium, with their accompaniments of obelisks, sphinxes, colossi, which, we know, have been objects of wonder to the most intelligent visitors since the age of Herodotus?

Enter the cities. What are they but architecture which strikes at once as the eyes, nose, and mouth of the place? What was the hundred-gated Thebes but temple-palaces with their lofty pylons? What is there at Athens but the Acropolis and its architectural treasures? What is Venice but an architectural gem set in the brightest of seas, reflecting the brightest of skies? What are Florence and the Eternal City but their charmed stones,—Nuremberg, but its harmonious bricks?

Again, most educated people have a fondness for history, as, next to what is to be in the future, nothing is more interesting than the inquiry into the past. But here are history's landmarks,—her rolls, her tablets. Architecture is history's self. In it history is more vividly and unquestionably written than on the printed page. In the career of architecture, its multifarious varieties in different countries and mutations in course of ages, we have reflexes of human feelings and human genius as influenced by the various circumstances, more especially religion, and the inherent mental peculiarities of race under which man is placed in the world. So much is this the case, that a diagram chart of the styles of architecture is a rough chart of political history, of ethnological history, and history of religions. Few people are aware, while reading of the rise and fall of the ancient empires, the rise and progress of Christianity, the conversion of Constantine the Great, the division of the Church into the Latin and Greek communities, the incursions of the Teutonic tribes upon the Roman empire, the rise and conquests of Mohammedanism, the Crusades, the Iconoclastic persecution in the Eastern Empire, the Norman conquests in Italy, France, and England, and invasion of Apulia and Sicily, the capture of Constantinople by the Turks, the Reformation, the expulsion of the Moors from Spain, that these events have all their corresponding ones in the history of architecture, and have built themselves on to the surface of the earth. It is said, I doubt not with truth, that the Xanthian marbles in the British Museum show the three-fold connection between Assyria and Persia, Persia and Asia Minor, and Asia Minor and Greece. The vast despotism of the Cæsars, gradually effacing all national peculiarities, and assimilating the remotest provinces of the empire to each other, may be read in the uniformity of style of the architecture of those centuries which was all Roman over the whole Roman or civilised world till the fifth century, when the Byzantine took its rise. There were no other styles practised in the world at the time except a Sassanian, a Buddhist and Chinese. The extensive commercial intercourse of the Venetians with the East, commencing with the Crusades, which opened to them all the Syrian harbours, and led to a universal monopoly in the Greek empire, and to a partial sovereignty in 1204, may be read in the beautiful Oriental character of their architecture, and their proneness to colour. The origin of the Northern Gothic is similarly traceable in history. There is, at least, a striking analogy between the manner in which the qualities brought with them from their forests and marshes by the Northern warriors,—energy, independence, the dread of shame, the contempt of danger,—mingling with those of effeminate classic races in the Roman Empire, produced, after generations of ignominy and confusion, the modern European character, and the slow generation of the Gothic style of architecture by the same people out of the decadency of the classic Roman,—Christianity, I need scarcely say, entering as an element into both.

## MR. J. G. MOONEY'S NEW PREMISES, GREAT BRITAIN-STREET.

THOUGH we are no advocates for the promotion of the liquor traffic, nor for an extension of the means by which it is maintained, as architectural journalists we cannot but admire the public spirit and improved taste shown by many of our city merchants engaged in the trade, in the erection of new premises. We need not refer to the great expenditure of the Messrs. Guinness and other manufacturing firms, but in every quarter of the city such an improvement has been effected by the erection of new and handsome buildings, that great impetus has been given to the building trades. The opponents of the drink system may be justified in grounding their arguments against the gin palace by the temptations held out to the working classes, but it must be conceded that a great deal of the money comes back to the pockets of the working man by the vast expenditure of those engaged in the trade.

Foremost amongst such men is Mr. J. G. Mooney, of Abbey-street, who has erected several buildings of a superior class, and who has just opened a branch establishment in Great Britain-street, opposite the Rotundo. Mr. Mooney seems to have profited by experience, and has transformed a very uninteresting concern into a substantial and handsome establishment, novel in design and creditable in execution.

The exterior of the building, for a height of 20 ft., is of chiseled limestone from Sheep-house quarries, Drogheda, and is exceedingly well executed, the consoles being carved by Harrison, of Great Brunswick-street, in his usual creditable manner, shewing the skill of the artist, as well as the excellence of the material which we would wish to see more extensively used for such a purpose, instead of the imported trash which many of our architects are so fond of introducing. The pilasters of Aberdeen granite stand out well in contrast with the limestone, the caps being of Portland stone well carved. The entrance door in centre of façade is protected by Salmon, Barnes, and Co's. revolving shutters, and on either side are large windows with plate-glass, and having very handsome blinds of stained glass in quarry glazing. The screen inside the entrance door is both novel in design and an attractive feature. The porch and portion of the shop floor are tiled with Mintons' tiles by Sibthorpe and Son. The walls for a height of 4 ft. 6 in. are panelled in Sienna and Cork red marble, having bold marble skirting and capping. The ceiling is panelled in wood and decorated; the height from floor is 16 ft. The fittings are substantial and elaborate. The counter is panelled in oak inlaid with ebony, and having walnut pilasters. The counter top is also of walnut, with a broad edging of German silver lettered. The fixtures are of an elaborate description, executed in mahogany, ebony, and walnut. A neat rose window of stained glass lights the rear of shop, and the upper rooms are reached by a neatly contrived stairs in angle near porch. The iron work is very well executed by Mr. M'Gloughlin, of Cuffe-street, and the plumbing, lighting, and other works are all of an unusually good description, and creditable to the different firms, and to the general contractor, Mr. T. Counolly, Dominick-street, who has carried out the works in a very short space of time under the immediate superintendence of the architect, Mr. F. Morley, A.R.I.B.A., who has made the most of a very awkward site, and treated the design in an original and very effective manner. The entire cost is about £2,000.

**A NEW PATENT.**—An invention, by which, it is said, iron and steel of a superior class can be manufactured from ores of an inferior description, has just been patented in this and other countries. In the Cleveland district the invention is considered to be one of great importance, and likely to lead to a revival of the iron trade in that part of the country.



## ADVERSARIA HIBERNICA,

## LITERARY AND TECHNICAL.

THE Christian name of Peter has been borne by a number of remarkable persons—kings and peasants, saints and sinners, wise men and wild men, heroes and hermits. The story of Peter the Wild Boy, found in the woods of Hameln, in Hanover, in 1725, and who died in England in 1785, on a small pension allowed by the Government, is pretty well known, as is also that of Peter the Hermit. The former, however, was an idiot, while the latter was a brave and well-informed gentleman. We have had hermits and pilgrims in Ireland, too, from age to age down to the present century, and we recently gave some particulars of one Captain Dempsey, who resided in Dublin.

The eighteenth century furnishes us with one who bore the name of Peter, and whose name was supposed to be Cavanagh. He forms the subject of a communication to a popular magazine published in this city towards the close of the last century. His domicile or hermitage is also illustrated in the same periodical; but the engraving of it, by Clayton, is partly, we think, imaginary as a representation, although the hermitage itself appears to have been a reality. The writer of the article describes a discovery and scenes witnessed about twenty years preceding, or in 1774, when he was benighted on a journey on the road between Ballyragget and Kilkenny on a tempestuous day in February. Passing over some preliminary passages descriptive of the traveller's distressed situation on a dark night, and of his wanderings and gropings which eventually led him to the hermitage, which was situated on the banks of the Nore, we came to the scene of his discovery which he thus describes:—"I discovered a small paved path in a winding direction towards the river. This I descended and found it conducted me into a small court, on one side of which was a house, and on the other, hanging over the river, large trees. At the entrance of the house, a small porch led into the apartment, whose door being open I went in, but found no inhabitant, all being silence and darkness. Finding something like a stool or seat I sat down, and thus, being protected from the inclemency of the weather, resolved to wait till the approach of morn. What was my astonishment on the appearance of day to find myself in a small domestic chapel, lined with wood and curiously painted. The ceiling was arched, painted of a sky colour, and studded with golden stars; the cornice was covered with clouds, through which appeared the heads of seraphins. The altar and altar-piece, which occupied one side of the chapel, was also of wood, and curiously painted with several scripture-pieces in oil in rather superior style, such as the resurrection, ascension, &c., with some saints. On the front of the altar was the representation of a coffin, in which was a corpse, and on the altar some human skulls and other bones. In the apartment through which I had passed in the dark, was a fire-place and a recess apparently for a bed. The whole building was about 24 ft. by 16 ft. with its front towards the river, before which was a small court 20 ft. in diameter, with another encompassing the house, about 10 ft. wide and enclosed by the native rock on three sides, which rose perpendicular several feet above the roof, covered with brushwood, and on the western verge was a large grove of ash. A more sequestered and romantic spot could not be well imagined as a full view of the river Nore extended from the front, and it was sheltered on all sides from the wind."

We may stop here to say that the pictorial representation engraved by Clayton certainly bears out the description of the writer; but in the engraving we have a picture of the hermit introduced with an open book before him, sitting, we suppose, on his favourite spot in front of his habitation, engaged in his devotions.

The writer continues:—"From this examination I concluded that the mansion was

a hermitage, appertaining to some religious recluse. Accordingly, once more I entered the chapel and explored every compartment and recess of the altar, in one of which I found a manuscript, somewhat damaged by damp, bearing this title—"Letters on Human Prudence, written originally for the benefit of my dear child Eugenio, now no more." On returning from the hermitage by the path I had descended, I found on the eastern declivity, near the vertex, a small plain or recess of brilliant verdure, in which were erected a number of small wooden crosses, where I afterwards found the good hermit preached to and exhorted the country people, who informed me that having been an inhabitant of that retirement upwards of thirty years, he had died a few years before, aged near 90. From his universal learning, knowledge, piety, and sanctity of manners he was universally esteemed and respected, and much regretted at his death; being in reality both their spiritual and corporal physician. They said he was called Father Peter, but believed his real name was Cavanagh; but of this they were not certain, he being very reserved in respect to his private history. They have often heard him sigh and lament his long lost child and dear partner of his life, but they knew no more."

The writer, in conclusion, tells us that the manuscript mentioned contains "excellent moral precepts, extensive knowledge of the world, human heart, and classical learning," and he resolved on communicating these letters, as far as they were deciphered, to the public through the pages of the periodical alluded to. He intimates that he would feel obliged if any correspondent could supply further information "respecting the real name, family and private history of this hermit of the Nore, and whether he is the real author of the letter under consideration, and signed Hilarius." In succeeding issues of the periodical five of these letters are published at intervals, under the following sub-headings:—"Virtue," "Honour and Integrity," "Friendship," "Frugality and Expenses," and "Business." Assuming that the contributor to our Dublin periodical has been accurate in his statements regarding our Irish Peter the Hermit, and the finding of the MS., his discovery was certainly a somewhat curious one; but one is prone to wonder how the hermitage remained so long unpillaged and undescribed before our author's visit. Perhaps the peculiar sanctity of the habitation in the eyes of the peasantry of the time tended to the preservation of the place so long from the hands of the spoiler. Again, we wonder why the writer of the sketch preserved silence so long as twenty years before he communicated the particulars of his discovery to the public. Though possessing a pretty wide acquaintance with matters of note in Irish periodical literature and otherwise, and a tolerably fair and retentive memory of former readings, we never remember to have met with any notice of the hermit of the Nore, save the one which has formed the materials that we have above utilised.

Robert Armstrong, an humble but talented artist and antiquary, who did much to illustrate the antiquities of his country, and his native county, Louth in particular, has furnished us with some interesting particulars in his article on Maiden Tower, Drogheda (published in the second volume of the *Dublin Penny Journal*), of a native stylite—a woman in this instance—who selected the top of Maiden Tower for her habitation. This female hermit, of the nineteenth century lived, we fear, too late for the perfection of her aims, for when the first blush of curiosity was appeased on the part of the people of her neighbourhood, the stylite appears to have been coldly neglected. We will give Armstrong's description in his own words:—"In the spring of the year 1819, the inhabitants of a neighbouring hamlet were surprised by observing smoke issuing from an angle of the parapet, and on proceeding to ascertain the cause, they found on

the upper platform a care-worn middle-aged female. She had gathered a quantity of bent, of which she had constructed a bed and lighted a fire; she had also brought thither a few articles of humble household furniture, and a wheel on which she was spinning flax. On being questioned as to her motives for being in that out-of-the-way place, she said she was weary of the world, and had been directed by a vision to retire here; and that in this spot she was determined to spend the remainder of her life. She spoke fluently of revelations made to her, and as there are few characters held in such veneration by the rustic Irish as a devotee, she became not only an object of curiosity, but also of sympathy and reverence. In a short time, by the gratuitous labour of the peasantry, a shed roof was constructed over the platform, a rude chimney was erected, a bedstead and table provided; other little matters arranged for her comfort; and she appeared to be quite at home in her aerial habitation, from which she seldom descended except on Sunday, when she regularly attended service in the Roman Catholic Chapel of Mornington, and offered at the altar the weekly produce of her wheel, as she said to 'Ged and the Blessed Virgin.' During the summer of 1819 her situation was not only agreeable but flattering. Visitors flocked in abundance to see and converse with the recluse, and as few obtruded on her privacy without leaving a trifling sum or condiment, her necessities were tolerably supplied. On these occasions she would allow the females of the party to ascend through the top to the platform, but to males she was inexorable—she would in no case admit them. Sometimes she would allow them to raise their heads above the level, but no more; and a certain wildness in the eye, and an occasional glance at a heavy stool placed within reach of her wheel was sufficient to repel the most courageous. Her conversations and answers were generally coherent, except upon the particular subject of her voluntary seclusion; but on this topic she wandered, and gave evidence of a disordered imagination. The writer had an opportunity of seeing her, and though her ease was open to suspicion, he verily thinks she was sincere. Her appearance and manner were respectable, and she was scrupulously neat in her dress. She represented herself as a native of Drogheda, from whence she removed with her connexions in early youth. She had met misfortune—had witnessed the death of all her friends, and outlived her affections; and now, in the evening of life, finding herself alone, and the world a dreary blank, had returned many a mile to live in this extraordinary place and manner."

The scene soon changes, and her bright visions, if she really had any, of comfort in this world were soon dispelled. Here is Armstrong's account of her remaining days while on the tower top:—"The summer of 1819 passed, and winter, cold winter, asserted his sway; but even through the ofttimes long and tempestuous night her lamp still glimmered in the tower, and resolutely she held to her post and her purpose. A neighbouring gentleman—the late James Brabazon, Esq., of Mornington House—pitying her fatuity, kindly took care that she should not want actual necessities; and she weathered the storm, and spring and summer again smiled on her, but the novelty was past. She lived some hundreds of years, too. Few thought the sight of a fool sufficient recompense for the labour of toiling up a spiral stair like an everlasting corkscrew, and the poor creature was forgotten. She, however, clung with tenacity to her resolution, although occasionally she might be seen visiting the neighbouring cottages. But winter again set in—her good friend Mr. Brabazon was no more; her health failed; her heart sank; her spirit was subdued; and this stylite of the nineteenth century, who in a former age would be thought worthy of canonization, was at length fain to seek a shelter and subsistence in the mendicity asylum of Drogheda."



Maiden Tower still stands, and it has of late years become a subject of increased archaeological interest, and steps have more than once been taken in view to its proper preservation. It is situated at the mouth of the River Boyne, and to the south of its entrance. It is of whitish colour, and of considerable elevation. Whether it was originally erected for a beacon or landmark, records do not say. The top of the tower is terminated by battlements, and below it is entered from the north side by a low arched doorway. You ascend to the top by means of a narrow winding or spiral stair, but there are no windows or apartments, the tower being lighted by a number of loop-holes. Near the summit there are two irregular apertures of large size in the eastern and western sides. Some persons have thought that the tower might have been erected for the purpose of a lighthouse, but its lack of requirements for that purpose and the peculiarities of its construction forbid the idea. Maiden Tower has, however, heretofore been acknowledged to possess all the requisites of a look-out station, as it commands a view of the entire sea horizon from Mourne to Bray Head. Its landward prospect is also extensive: a large portion of the counties of Meath and Louth being clearly observable from its top in bright weather. The tower is three miles from the town of Drogheda, and in the manor of Mornington, which gave title to the Duke of Wellington's family. According to the historian Keating, not far from this place Milesius and his followers first landed in Ireland; but the pages of that historian must be consulted for more information concerning the wonderful events represented to have taken place. We are, we fear, a doubting and incredulous people in these days for steam and electric currents have knocked all the simple and primitive faith of our forefathers completely out of us. Talk of the incredulity of St. Thomas! Pshaw, it is often hard now to get men to believe what they can see and feel, for, as the Latin maxim says, the "perfection of art is to conceal art." Perhaps that is one of the reasons why the "Confidence Trick" is so successfully worked "On 'Change" and without change. H.

#### THE CO-OPERATIVE MOVEMENT.— GENERAL TRADERS V. CIVIL SERVANTS.

We have already given our readers some particulars of the question at issue between the ordinary traders and shopkeepers and the civil servants conducting co-operative stores. Another meeting has taken place in London since our last publication; a conference of delegates from a number of the vestries and district boards of the metropolis being held to consider the question of crown servants conducting trades. Much discussion took place, and propositions were made, and among other resolutions adopted were the following:—

"The committee consider, in the first instance, that it is highly desirable, and indeed necessary, that the resolutions passed unanimously by the conference should be brought under the immediate notice of the Government, in order that their views upon the matter may be ascertained. The committee are strongly of opinion that the principles enunciated in the resolutions of the conference being not only reasonable but just, the propositions mentioned therein must commend themselves to the favourite consideration of any Government desirous of redressing palpable grievances, such as those complained of by the conference, and that, in the interests of the community at large, the Government must accordingly take measures for removing the manifest unfairness and injustice that now exists."

"The committee, considering the inexpediency of crown servants (active or retired) being longer permitted to conduct trades to be of general significance, recommend that a copy of the resolutions of the conference with a copy of this report be sent to the governing authorities of all provincial towns within the United Kingdom, and that they should be invited to further the same by rendering all pos-

sible assistance in the matter, as they may deem advisable."

"The committee, therefore, recommend that the conference should form a deputation to the First Lord of the Treasury, or to other Cabinet Ministers, as may be arranged, to urge upon the Government the necessity of their adopting means for removing the abuses and mischief complained of by the conference; and that representatives from the provincial towns be invited to attend and take part in the deputation."

"Pending the consideration of the matter by the Government, your committee are not prepared to report as to what further steps it may be desirable to pursue in carrying out the views of the conference; but as the achievement of the principles of the conference must be accomplished, they are very desirous to intimate that, in the interests of the taxpayers and of employes, and to remove the anomalies now existing, whereby the energies of the *bonâ-fide* trader are paralysed, it will be necessary to establish a general association. In that event, it would be desirable that a programme should be drawn up for the proper regulation and carrying on of the association, and to enable it to act in conjunction with other bodies who may be either desirous of working hand in hand with the association, or of promoting objects likely to be advantageous alike to traders and their customers, so as to ensure a mutual understanding to the common good."

"The traders of England are earnestly requested to form local committees throughout the country, and use the great power and influence they possess in the ballot at the next general election by voting only for such men (independent of politics) as will pledge themselves to support and uphold the *bonâ-fide* trading interests of the country, even though every city and borough in the kingdom have to put up, elect, and maintain a member from the trading class in defence of such interests as against the unwholesome and ruinous system carried on by Crown officials to the grievous detriment of tradesmen and the State in general."

#### CORRESPONDENCE.

##### PROTECTION FROM FIRE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The destruction by fire of the mansion, Duncombe Park, including so many priceless gems of art, ancestral portraits, &c., is truly a national calamity! Unfortunately, such an occurrence is by no means rare.

For the protection of noblemen's country residences, I take it for granted that most of them have one or more fire-engines on the premises, but a fire-engine is a mockery if the water supply fails (too often the case when a fire of any magnitude occurs), and hence the necessity for a special cistern of sufficient capacity for all possible contingencies; and as there are but few country mansions of any importance without a lake or large pond in their vicinity, sanitary pipes might be laid, if the level permitted, in connection with the cistern.

The use of iron is fast superseding wood, and might be largely used in the construction of country mansions. *Certes*, when a fire breaks out, the less wood they have about them the better. The floors might be of iron, similar to the decks of some of our large steamers, *i.e.*, of embossed plates, about 3-in. thick, coated with Portland cement on the top side, and laid upon iron beams (specially rolled for the purpose).

Sir William Burnett patented a process a few years ago, for rendering wood impervious to the ordinary action of fire by treating it with a certain chemical solution, presuming it answered fairly well; wood so prepared might be used for the necessary internal fittings, and so the liability of a house, or rather the movable furniture of a house, to destruction by fire would be well-nigh reduced to a minimum.

With regard to heating apparatus, the hot-water system is decidedly preferable to, and infinitely safer than, the flue or hot-air system.

How frequently a fire originates under the hearthstone, due to the slab being too thin, and set upon wooden sleepers, and perchance a roaring fire kept up in a low grate until the inmates of the house retire to rest,

For extinguishing a fire in the early stage, the "*Extincteur*" (a small portable appliance) has already done good service, but is not so well known or appreciated as it deserves. It has, however, been adopted by several of the large hotels in London, at the South Kensington Museum, and on shipboard. To it Mr. Brassey, M.P., was greatly indebted for subduing a fire which broke out in the night on board his yacht the *Sunbeam*, during his recent voyage round the world.

H. S. HARLAND.

[The suggestion in the above letter is certainly worthy of consideration, for many fires take place from hearthstones being laid upon joists in an improper manner, and the "scamping" way in which the trimming timbers at the chimney-breasts are placed by speculative builders. Indeed in several instances we have known the necessary framing and placing of timber next the hearthstone and beside the chimney-breasts to be altogether ignored, and danger from fire in such cases is always imminent. Mr. E. J. Harland (of the firm of Harland and Wolff, Belfast), who, we may remark, is brother to the above writer, patented some years since a process of rolling embossed iron plates for ships' docks. The present is an opportune time for again giving attention to the subject, and, by availing ourselves of what is to hand, either through modifications or improvements, rendering the inventions and processes useful as far as possible for the important and urgent wants indicated.—Ed. I. B.]

#### A NOTE-WORTHY CONCURRENCE.

OUR contemporary the *Builder* having *ab initio* to its issue of last week numbered exactly the age A.D. 1879, this singular concurrence was made the subject of the annexed brief "Note" by the editor, Mr. George Godwin. The last dozen of lines of the passing note in the *Builder*, the present writer can from his own personal knowledge, specially endorse. As journalists, therefore, who have always essayed as far as our lights allowed us to act our part in a conscientious way, we speak our mind on the opportune occasion, instead of reserving our recognition for a set occasion, or perchance, as is often done, to "soothe the dull cold ear of death," if that were possible, by a tribute that should be paid to the deserving living:—

"A concurrence that never took place before and that can never by any possibility be found again, would seem to be worth a passing note, though in itself of no consequence, and this it is:—the number of our present issue is that of this year of grace, 1879. Simple enough and unimportant; but it serves to bring our mind in a striking way the marvellous passage of time; and, filling us with recollections and thoughts, would lead us to take the gentle reader into confidence at some length, as was our custom in earlier and more 'gushing' days. But the opportunity is not present; the idea has come too late; the paper is made up, and for every line we add to this some other line must be displaced. One remark, however, forces itself upon us, and will have expression, egotistical though it may be deemed. Of those 1879 weekly numbers which constitute the present life of the *Builder*, one thousand seven hundred and eighty-one have been produced and issued under the direct personal care and supervision of the present conductor. It is not a gladdening recollection, this passage of unrecallable time,—this progress towards the END,—but it is something to be able to say, with hand upon heart,—yes, even with lips to Bible,—that during that time the endeavour has been to perform faithfully, and with high aims, the functions of such a position; that self-seeking has never been a motive; that pain has never been willingly given; that while we have often stepped out of the way to assist budding talent or back up struggling desert, we have never knowingly sought to gratify a personal pique. The constant endeavour has been to encourage right feelings, to afford useful information, and to effect such an amount of good as our most earnest, if humble, efforts could compass."



## MIDLAND GREAT WESTERN RAILWAY IMPROVEMENTS.

### THE BROADSTONE AND ENVIRONS.

To those who, like ourselves, have a lengthened recollection of the locality and site of the Broadstone Terminus of the Midland Great Western Railway, the changes that have taken place will not, perhaps, cause surprise; but to the citizen who has been absent for some years, and again visiting the Broadstone of his youth, the wonder experienced must be of a lively character. The Broadstone locality has a history of a more than local character which would be well worth relating in detail, but we cannot here enter upon the task.

The road between the Broadstone and Glasnevin, known of old as Finglas-road—though latterly called the road to Phibsborough—was for a portion of its length known as Glasmanogue, the high road passing through a village or district of that name. Glasmanogue is marked on most of the old maps of Dublin, and here in 1575 the mayor and sheriffs of the city held their courts during the continuance of a great plague which it is stated carried off 3,000 persons, depopulating the city to such an extent that grass grew on the streets.

The Broadstone was, even before the opening of the Midland Railway for traffic in 1847, a busy place, as it was the point of departure for the canal fly or passenger boats to Mullingar and the Shannon, with several intervening places. The Broadstone branch of the Royal Canal was a cut of nearly a mile and a-half from the direct line, and this cut ended in the old docks and stores, where the barges of several merchants were loaded and unloaded at the mere of Constitution-hill. The property of the old Royal Canal Company was taken over by the Midland Company on its opening, pursuant to an act of the 8th and 9th Vic. Of course, since the opening of the railway all passenger-boats have ceased to ply, but the canal is still used for the traffic of barges or boats for carrying heavy goods, &c. While the old docks of the canal harbour continued to be used at Constitution-hill, it was necessary to preserve the waterway, and a floating pontoon was made to answer the purposes of a bridge to give a ready access for both vehicular and passenger traffic reaching the Railway Terminus. In the old passenger-boat days, and before the opening of the railway, a small foot-bridge spanned the canal, and on a level or nearly so with the pathway and top of the canal crossing the old aqueduct. The demands of the Midland traffic several years since necessitated the widening laterally of the roadway or space above the aqueduct and facing the Railway Station.

The improvements carried out recently, and still proceeding, on the part of the Midland Railway Company at the Broadstone are tending like other great modern improvements to obliterate old historic as well as commercial landmarks. The old canal harbour has been filled in, and its site will be shortly covered by the erection of a new carriage shop. The harbour goods store has been converted into a wagon dépôt, and the wharfage store, at which boats used to load and unload, as already indicated, has been made a timber store. It is needless to say that the filling in of the harbour has afforded considerable space to the company's new and extending premises. It has, at the same time, necessitated the removal and

changing place of some of the boundary walls, thus affording more roadway for the passage of cars to and from the terminus.

The services of the old canal aqueduct as a waterway atop has, of course, been rendered useless, as well as its continuation, the filled-in harbour, over both of which a roadway has been constructed. The aqueduct (under which passes the old high road), sometimes called the "Foster Aqueduct," was called after John Foster, the Speaker of the Irish House of Commons, having been erected in the parliamentary era of this country. It was once considered a clever piece of architecture and engineering, but its grandeur has long departed, though it still possesses an historical interest. It is proposed to remove the added iron girder portion of this bridge across Constitution-hill to the opposite or Phibsborough side of the aqueduct, so as to give a clear roadway to the terminus (the contract work being given to Messrs. Courtney and Stephens), the gradients of the approaches thereto having been considerably reduced, *e.g.*, Constitution-hill being lowered from 1 in 19 to 1 in 32. The retaining walls to carry the iron bridge will be of massive proportions, bedded in concrete foundations, and on either side the bridge will be surmounted by a granite coping. Together with the filling-in of the aqueduct, the shortening of the canal proper has obviously taken place, but the work resulting has been the construction of a new harbour in which to turn the barges, &c.

These works have necessitated the removal of the old-established business of Mr. Thomas Brett, higher up on the banks of the Broadstone branch of the canal, and approached from the new roadway. This new roadway, 60 ft. at its narrowest point, has been made through a portion of the Blessington Estate, commencing at the Broadstone and sweeping round at the mere of Middle Mountjoy and Fontenoy streets, and terminating in Mountjoy-street at St. Mary's Chapel of Ease. The side walks have been planted with trees, and evidence a more promising prospect of healthy growth than those in "The Mall." The Blessington Estate has been only a few years opened for building in that portion we are noticing, and is being fastly covered, but a few vacant plots still exist, as also some few other sites in the immediate vicinity. It has been suggested, and perhaps the suggestion may be realised—of a branch tram line being made by the new thoroughfare—the gradient of which is only 1 in 96,—which would certainly be a great convenience to those travelling by the Midland Railway, as well as to the people of the locality.

Among the other improvements carried out by the Midland Railway Company has been the erection of a fitting shop; and we are glad to hear that they are now building their own locomotives. We were shown an excellent specimen of what may be termed a "family first-class carriage," fitted with couches, arm-chairs, separate servants' compartment, and provided at the other end with a lavatory and other sanitary and travelling requisites. This carriage is fitted with Cleminson's patent frame and axles—a patent we have already described in our issue for December 15th, 1877. The works carried out at the Broadstone Terminus of the Midland Railway indicate the fastly-growing wants of the company in connection with their inland and cross-channel trade.

A word historic by way of *finis*. The course of the old Bradogue River in our young days was observable in the fields at the Broadstone, where the Midland Terminus stands. At a later date, if you wished to catch sight of the old stream without trespassing, you would have to proceed to the North Circular-road some distance on the Phibsborough side of the Female Orphan House. The Bradogue crosses the Circular-road and winds its way towards and through the grounds of the Richmond Penitentiary; and, as we said already, it formerly showed its open face at the Broadstone. This old stream is now lost to view between the Broadstone quarter and the Liffey, where it finds its outfall near Essex Bridge, we believe. The Bradogue, in the city portion of its covered length, is now a foul sewer, and a filthy tributary of a filthier Liffey.

The old approach through Upper Dominick street to the Broadstone Terminus presents a rather steep gradient, yet the declivity and its surroundings, including the King's Inns buildings and grounds (formerly Primate Robinson's gardens, &c.), is picturesque and healthy, and has been much improved by building of late years. Constitution-hill, in the old passenger-boat days, was a busy and prosperous place, having many good inns, with inns for "the entertainment of man and beast." The Hill has sorely decayed as a stopping place for travellers, except of the humbler kind, and its condition could be much improved by a little sanitary supervision. The Church-street approaches (from the quays) to the Broadstone, inclusive of Constitution-hill, need a sweeping measure of sanitary improvement, but, alas! we cannot expect the work of a Baron Hausseman at the hands of the municipal authorities of Dublin.

### THE SOUTH CITY MARKETS.

Our illustration is an interior view of the South City Markets, as designed in competition by Mr. Thomas Drew, R.H.A. The original sketch having been in pencil, and from other causes, the photo-lithograph has not turned out as clear as we would have wished.

### BOOKS RECEIVED.

*Practical Architecture as applied to Farm Buildings, Stables, Country Houses, and Cottages.* By Robert Scott Burn. London: "The Country" office, 170 Strand.

THE author of the handy book whose title we print above, is to be commended for publishing in a permanent form the series of papers which appeared in the columns of "The Country." With the aid of some hundreds of well-executed wood engravings, the ordinary country builder will experience no difficulty in getting through the works generally required on a large estate. The letterpress and binding of the work are excellent.

*The Journal of the Royal Historical and Archaeological Association of Ireland.* Vol. iv., part 35.

IN the part just issued, the Rev. J. F. Shearman concludes his paper entitled "Loca Patriciana." The author institutes an inquiry into the history of the three Patricks, apostles of Ireland in the fifth century. In appendices we have a catalogue of the kings of Ireland from the Christian era, and the names of saints, ecclesiastics, and virgins in the genealogies. At the end of this part is a short paper, by Rev. James Graves, on "Bronze Shields." There is also an engraving of a shield found in 1837, near Yetholm, Roxburghshire.



## THE ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held on Monday evening for the election of members and the transaction of general business—

Sir ROBERT KANE, President, in the chair.

The following papers were read:—By the Secretary, for Rev. James Pearson, "On the Computation of Occultations and Eclipses;" by C. R. C. Tichborne, F.C.S., "On the direct evidence of the Dissociation of Salts, when in Solution;" and by Professor Hennessy, F.R.S., "On the numerical value of the Precession of the Equinoxes, if the Earth was entirely solid." The papers were referred to Council for publication.

The Secretary stated that the Committee of Literature and Antiquities recommended for election, as an honorary member of the Academy, M. Littre, of the French Academy. The Committee of Science recommended the election of Mr. William Huggard, F.R.S.

Mr. Gilbert, Librarian of the Academy, gave, at the request of the President, an explanation relative to the motion proposed at the last meeting by Dr. Frazer as to the means provided for the safety of the books and MSS. of the Academy. Mr. Gilbert said it was very unfortunate that Dr. Frazer's motion had been brought forward at a very late period of the evening, when many of the members had left. The gentleman who brought it forward, no doubt from the best motives, must have been entirely unacquainted with what had been already done in the matter. More than a year ago application was made by the Council to the Board of Works to supply the necessary fire-proof safes for the preservation of the MSS. of the Academy. The Board of Works promised to do so, and the safes were daily expected. The motion was calculated to lead the public to believe that the Council had been to blame in the matter, and accordingly at its meeting on the 3rd inst., it passed the following resolution:—"That the Academy be informed, in reference to the above resolution, that the council have had the question under consideration, and that a request had been already made to the Board of Public Works to provide suitable safes." At present, pending the provision of these safes the more valuable MSS. are taken at night to the strong or fireproof room, and are brought down again in the morning.

Dr. M'Swiney, in the absence of Dr. Frazer, would say that admirable as the explanation was, it perhaps might not have been given but for the statement of Dr. Frazer. Although he might have been in ignorance of the state of affairs, his ignorance was quite intelligible in view of the explanation that had been made.

The following were elected members:—James G. Beaney, M.D., Melbourne, and Austin Meldon, M.D., 15 Merrion-square, North.

## NOTES OF WORKS.

The Town Commissioners, Newry, contemplate making sundry improvements to the covered market in their town, from plans prepared by Mr. D. C. Meares, surveyor.

The Board of Guardians of the Strokes-town Union have accepted the tender of the Lough Allen Clay Works Company, for the supply of sewerage pipes for their drainage scheme.

A new Presbyterian church is drawing towards completion in the Mall, Armagh, from the designs of Messrs. Young and Mackenzie, architects, Belfast. The building, which is in the Decorated style, consists of nave and aisles, and a tower and spire at north-west angle. The material is local marble, with Dungannon freestone dressings. There is a considerable amount of carving throughout. The contractors are Messrs. J. and J. Guiler.

## HOME AND FOREIGN NOTES.

ROYAL HIBERNIAN ACADEMY OF ARTS.—Mr. G. C. Ashlin has been elected an Associate, which election has received the sanction of the Lord Lieutenant. The "Albert Scholarship" of £20, offered by the Academy for the best work produced by any of its students, has been awarded this year to Mr. Michael Fitzgerald for his picture "In Rathfarnham Park."

ROTUNDO HOSPITAL.—At a stated meeting of the Board of Governors on Friday last, a block plan of the hospital and of the Rotundo rooms and gardens, prepared by Mr. F. A. Butler, C.E., was submitted, exhibiting the *loci* of all surface and underground drains and sewers, and water and gas pipes. Messrs. Barnewall and Son's tender for repairs and renewal of the Rotundo Gardens railings, at east side, at a cost of £168 8s., was accepted and ordered to be carried out.

DUBLIN ARTISANS' DWELLINGS.—The directors, in their report to be presented on Tuesday next, say that the capital subscribed is £32,590. The block of buildings facing Dominick-street Upper were finished in October, and are now all occupied. The second block facing Buckingham-street is not yet completed, but the contractors are pushing on with it. The directors recommend a dividend at the rate of 4 per cent. per annum; and after deducting a sum towards the clearing off preliminary expenses, a balance of £81 9s. 4d. will be carried to next account.

HOUSE-RENTS IN BERLIN.—The average house-rents for the whole of Berlin are—for an apartment on the ground floor, 259 marks; on the entresol, 214; on the first floor, 235; on the second floor, 199; on the third, 170; on the fourth, 143; on the fifth, 116; under the roof, 129; underground, 157. Nearly 120,000 people live underground, and 90,000 of them are lodged at such a depth below the surface that the atmosphere is dangerous to life. Of the 940,571 inhabitants of Berlin, about 10,000 live in dwellings where a fire cannot be lighted, and 426,000 in dwellings where one room only can be warmed.

THE ROYAL DUBLIN SOCIETY.—The series of "Afternoon Scientific Lectures" for 1879 commenced on Monday, the 10th inst., the first lecture being delivered by Richard A. Proctor, B.A., on "The Sun: Ruler and Fire of the Solar System;" a second lecture was delivered by the same gentleman on Wednesday, on "The Universe of Stars." The lectures, which will comprise a variety of subjects and be treated by a number of well-known professional gentlemen, will be continued until March, the 28th next. We will utilise as occasion offers those lectures, which have a direct bearing on questions in the special fields of our advocacy.

TRADES UNION CONGRESS.—The Trades Union Parliamentary Committee have reprinted the able statement of the Chief Registrar contained in his report for 1877, re the Registration of Trades Unions and its advantages. The statement bears testimony to the value of the Trades Union Act of 1871, and the Trades Union Amendment Act 1876. The parliamentary programme of the committee for the session of 1879 is similar to that which we published last year, and which was brought before the Bristol Congress last autumn. The committee make an urgent appeal for funds to the officers of trade societies and trade councils to enable it, now as the parliamentary session is ensuing to carry out their programme in the interests of workmen and to give effect to the work of the Bristol Congress.

THE PRESS IN PARIS.—According to a catalogue just published, 1,100 daily, weekly, and other periodical journals are published at Paris. Of these journals 71 are religious, 104 legal administrative, 153 commercial and financial, 23 geographical and historical, 139 of light literature, 31 generally amusing, 90 literary, philological, and biographical, 18 of fine arts, 1 photographic, 8 architectural, 15 musical, 17 theatrical, 7 of the fashions (3 of them devoted to hairdressing), 134 technological and industrial, 50 medical, 48 scientific, 29 military and naval, 38 agricultural, 23 sporting, and 27 journals of various sorts. The number of daily political journals is 49, and that of political reviews 14. Eleven periodical publications appeared last year in connection with the Exhibition.

PROPOSED CONVALESCENT HOME.—At the meeting of the Public Health Committee held on the 7th inst., Dr. J. W. Moore, Dr. Duffy, Dr. Porcell Atkins, and Dr. Benson waited on the committee in regard to the proposed Convalescent Home for persons recovering from infectious diseases. Dr. Mapother, consulting sanitary officer, and Dr. Cameron, medical officer of health, were in attendance. It was pointed out that the Corporation were

not desirous to undertake the management of such an institution, but were most willing to contribute liberally to its support. Eventually it was decided to present a requisition to the Lord Mayor asking him to convene a meeting of the citizens at the Mansion House in view of the pressing public necessity for such an establishment to prevent the spread of infection, and to make some provision for the wants of convalescents, especially for those of the better classes. The medical officer of health was directed to cause an inspection to be made of the dairy yards throughout the city. The condition of the slaughter-houses and the disabilities under which the Corporation labour in effectually dealing with them, were considered, and the establishment of abattoirs suitable to the city was discussed.

## TO CORRESPONDENTS.

CONCRETE FOUNDATIONS.—Country subscribers who have written to us will find a short paper in this issue on the subject. The matter has more than once been treated by ourselves, and sundry papers on concrete construction will be found in our back volumes.

C.E.—At present we have not space for a very long paper, and a series, if entertained, would require definite arrangements.

THE NEW NORTHERN TOWNSHIP.—Some suggestions in reference to the above are under consideration, and some notes on our part may follow later on in the year.

ANTHOLOGIA.—The celebration is proper and fitting, and in the city of the poet's birth the centennial anniversary should be made an impressive one. Genius can be honoured in this instance irrespective of sect or party, or rather by a union of all classes. The Moore Centenary is a national event, and not a municipal or parochial question.

RECEIVED.—W. Y.—H. F.—A Builder (yes).—J. M.—R. C.—A Workman.—F. F.—R. and Co., London.—Blackrock.—T. C. D. (under consideration).—D. L.—B. A.—O'B., &c.

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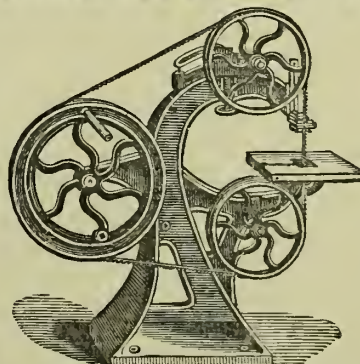
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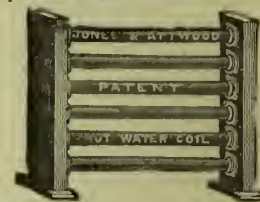
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THE IRISH BUILDER.

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WHAT IS AN ANTIQUARY?



HAT constitutes an antiquary, Irish or general? Is a mere lover of antiquities one? or are topographical artists and archæological writers antiquaries? Is it indispensably

necessary for antiquaries to be artists? and of architects or artists, which are the most likely to make the best antiquaries, granting to both sufficient historical information and a personal knowledge of the places, scenes, and objects described? The recent fierce discussions that have taken place on the subject of "Architectural Restorations," in which antiquaries, archæologists, architects, and others have taken part, suggested the above, among other kindred queries which we might put forward. We fear if we were to consult our dictionaries and cyclopedias for an exposition of the terms of "antiquary" and "archæologist," we would have to be satisfied with a very small modicum of information, and we would scarcely find, as far as our memory serves us, anything respecting the qualifications that should be possessed by one assuming the rôle of an antiquary.

For many centuries back antiquarian study has had a fascination for several men; and ordinary chroniclers and historians, from the very nature of their labour, have had to deal with antiquities more or less, both in the concrete and the abstract, although they were not disposed to put themselves forward as antiquaries in the more modern meaning of the term. Within the present century, since archæological societies have sprung up to supplement antiquarian ones, the study of national antiquities or memorials in the

British Islands has grown apace, and history, art, and literature, and all appertaining, have greatly benefited. There is a large class of people, to be sure, who look on the study of antiquities as mere rubbish, and those people do not stop to enquire whether the studies they condemn embody, to a large extent, the history of the past. It has been well said by another that this class of people view the very word antiquities as a something having a dry and musty look, bodied out, in fact, in the form of a spectral old man, whose blood is frozen, poring over some old rust-eaten weapon, or handling with an idolatrous affection some crazy vessel, which they scarcely could bring themselves to touch. Or, again, if they can fancy him unrolling records and attempting to decipher old characters, they regard him as a vision of the past—a being who has buried himself alive, and over whose mortal remains it is seemly and decent to draw the veil of forgetfulness.

It must be granted that the study of antiquities in the hands of the conceited, phlegmatic, and stupid may be rendered one of the most intolerable nuisances to be met with. On the other hand, it must be remembered that those who set no value on antiquities would pass over a plain strewn around with the rich and suggestive remains and memorials of buried generations of peoples who "breathed three thousand years ago," and upwards, without the slightest emotion. These people would stand unmoved on the grave of the illustrious dead, or even on the spot where the Saviour of Man was crucified, and never once dream that the dust of the valley could spring to life, the sounds which those hills reverberated in years of which scarcely a tradition remains would again awake the slumbering echo, and the wilderness be once more peopled with human beings.

There is a class of men in our midst—less in number, we are glad to say, than in the earlier part of the century—who run into opposite extremes in their attempt to elucidate the antiquities of their own and other countries. Ireland is a storehouse of relics to those, as Greece and Rome, and the reputed site of Troy and other classic places have been to some foreign antiquaries and excavators after wealth, golden and architectural. These people see undoubted evidences of former greatness in every direction, or at least in some particular direction; but, misled by prejudice or prepossession, they give ear to fables of a most absurd kind, and the word, painting of some ancient bards and chroniclers is tortured and embodied into realities. Homer may have written many truths, and Ossian and other native bards may also have given us more than fancy pictures or creations of the brain; but it is best in these, what are called by some, utilitarian days for antiquaries to act with judgment and discrimination, and examine, explore, or excavate before pronouncing a rash opinion. Thus will the pursuit of antiquities be profitable instead of deceptive, and stimulate others with time, taste, and means to do useful labour in illustrating the past history of their country.

Forty-six years ago, or, broadly speaking, nearly half a century since, the late George Petrie, then a comparatively young man, and known more as an artist and writer of topographical sketches, wrote a paper in reference to the "Tomb of the Countess of Desmond." The introductory portion of this paper is

valuable in view of our subject, for it contains Petrie's exposition of what constitutes an antiquary. Petrie was only about that time laying the foundation of his future recognised position as a distinguished Irish antiquary, which he certainly became, and was acknowledged to be, several years before his death. His work on the Round Towers and ancient architecture of Ireland was not published till about 1844-5, but even before 1833 Petrie had performed much useful work as a topographical writer and a member of the Royal Irish Academy. He, among other contributors, before the last-named year had begun a "Historic Sketch of the Past and Present State of the Fine Arts in Ireland" in the pages of the *Dublin Literary Gazette*, but owing to a variety of causes, as well as the cessation of that periodical, the sketch remained incomplete till a favourable opportunity in 1832 enabled him to take up the subject again from the beginning, and, with corrections, continue it to the end in the columns of the *Dublin Penny Journal*. We allude to these essays of Petrie, among others, to show that even at that date Petrie was qualified to pronounce an opinion respecting the requisites of an antiquary, although he could have little dreamed of his afterwards recognised position in his native land. Most of all Petrie's early topographical and antiquarian sketches appeared anonymously, or were signed with the well-known letter "P." Of course the authorship of the papers alluded to was known within a certain circle of friends, but to the general readers of that time "P.'s" entity was not recognised. Here is the introductory portion of the paper above alluded to, to which we shall give a name by heading it—

THE REQUISITES OF AN ANTIQUARY.

"It will possibly startle many of our readers, when we say that Ireland has never hitherto produced an antiquary, taking that appellation in its general and extensive signification. We have had useful and laborious historical compilers—antiquaries in our ancient literature—but in nothing else deserving the name. Even this appellation is scarcely merited by the majority of those compilers who extract every thing that falls in their way, without the ability to judge of its value, or to discriminate between that which is true and that which is obviously discredited to credit. To constitute an antiquary, even in a limited sense, something more is necessary than the mere ability to make extracts; and an antiquary, properly so called, in the more extensive meaning of the word, requires a combination of powers and acquirements, much greater than is generally supposed, and which rarely are found united in the one individual. An antiquary should possess, not only an intimate acquaintance with the history and literature of his own country, but also with those of every other in any ways however remotely connected with it. He should have a general if not critical knowledge of the progress of the various arts of civilized man, and the changes that have taken place in them, as exemplified in the architecture, sculpture, inscriptions, medals, &c., of all ages. He should have an accurate eye and a cultivated taste; and above all he should possess a vigorous and an honest understanding, not to be swayed by visionary national prejudices, but able to weigh evidences, and seeking truth above all things. Without these qualifications, a man may spend a life in poring over rare books or time-worn records, and be, nevertheless, but a useful grub, or pioneer, for the antiquary or historian himself. Ireland has produced some able literary antiquaries—of whom both Usher and Ware had each the learning, industry, and mental acuteness necessary for a general antiquary; but the science of antiquities was in its infancy, in Great Britain, in their times, and in Ireland they had to plant the very seeds of antiquarian knowledge. Their labours were, consequently, almost exclusively literary—the search after hidden historic facts, and the amount of their discoveries, in this hitherto unexplored field, were such as entitle them to the lasting gratitude of their country. Since their time we have had some industrious and praiseworthy compilers—as Harris,



Lodge, Archdall, and others, who by their compilations from unpublished MS. remains, have largely added to our accessible stock of historic knowledge. But above all the men of this class, we are most indebted to the late Dr. O'Connor, whose translation of so large a portion of the ancient annals of Ireland, and the great extent of learning and research exhibited in the dissertations appended to them, entitle him to the highest praise and honour as a zealous and profound historical antiquary. In regard to our ancient history and literature, therefore, much has been done of a valuable character, and though much still remains hidden, the road has been cleared of many of its obstructions, and the journey of future explorers will be comparatively easy. But in every other department of antiquarian science, the ancient pagan monuments, architecture, tombs, crosses, ornaments, and everything that illustrates the progress and extent of our forefathers' attainments in the arts of civilised life—all these have been unillustrated, or illustrated in such a way as only to involve them in additional obscurity, and to prove the utter incompetency of those who have attempted to treat them. Hence it has happened that a real history of Ireland is still a desideratum, for the historian can travel safely only in the wake of the antiquary; the past state of a country cannot be accurately known till its antiquities have been thoroughly and accurately investigated. It is hardly necessary for us to disclaim the arrogant assumption for ourselves of such extensive qualifications as we have stated to be necessary to constitute a true antiquary. Our sole object is to show the learned of our countrymen that a nearly unexplored field of inquiry is open to them, in which pleasurable occupation and honour may be gained."

Thus wrote George Petrie as far back as 1833, and his subsequent labours up to the period of his death, or, say, within the last twenty years, proved that he himself well deserved the title of being called an antiquary, although men may not accept all he has written on the vexed question of our Round Towers and some of his opinions respecting the ancient architecture of Ireland. We wish the same antiquarian zeal and literary and historic spirit were evidenced now in our midst as that which characterised the period when Petrie wrote the above words, and had for his co-labourer in kindred fields the late John O'Donovan and a number of others, higher and humbler in the social scale, but all working together with a hearty good will in illustration of the antiquities of their native land, intent with pen and pencil in doing honest labour as far as their lights allowed them.

The late Sir William Betham, Ulster King at Arms, author of several works of antiquarian character, was considered in his day no mean antiquary; but though he highly approved of the picture drawn by the anonymous Petrie of the requisites and characteristic of a true antiquary, he disputed Petrie's conclusion elsewhere in the article in reference to the "Tomb of the Countess of Desmond" in the Abbey Church of the Holy Cross, County Tipperary. Sir William Betham, who was somewhat proud of his heraldic lore, essayed to prove that the tomb in question was not that of Eleanor Butler, daughter of James, the second Earl of Ormonde, and the wife of Gerald, the fourth Earl of Desmond, or any of her family; but that of Elizabeth, the daughter and heiress of Gerald, Earl of Kildare, who was the first wife of James, the fourth Earl of Ormonde. It may be stated here that the tomb that gave rise to the controversy between Petrie and Betham had hitherto been considered as that of Donald More O'Brien, King of Limerick. Petrie replied to Sir William, and notwithstanding the heraldic argument of the latter, the reader is satisfied by Petrie's cogent reasoning that he is in the right, or, to use the concluding sentence of his reply, "Are we not

justified, therefore, in replying that further proof is necessary before we should be satisfied that we are in error, or at least Sir William himself is nearer the truth."

We have digressed somewhat, we fear, from the subject proper of our remarks, so we shall hasten to the end. The qualifications of the *bonâ fide* antiquary, we think, have been sufficiently indicated in what we have written and otherwise reproduced. At first sight it would seem to many that the architect, pure and simple, could have very little sympathy with antiquarian studies, and that he is more interested in creating than preserving. The history of our time, too, proves forcibly that the architect can be a strong and sympathising antiquary when he likes—an intense lover and "Restorer" of past greatness. That he loves moss and lichen, ivy, sparrows, pigeons, and bats—not brick, but winged ones—and each and all in their turn are necessary adjuncts to coming events, casting their advancing shadows. To be serious, why should not the architect, whether a classic renovator or copyist or a Gothic original or restorer, be a zealous antiquary? Has he not profited by the genius of the Greek and Roman and the great mediæval designers of his own country? The architect is in part an antiquary, in spite of himself; but whether he be British or Irish, he can never creditably sustain the position of the true antiquary unless he possesses the qualifications pointed out by George Petrie half a century ago, and embodied in the foregoing remarks.

#### THE MAIMED SCIENCE AND ART MUSEUM SCHEME.

##### THE ROYAL DUBLIN SOCIETY.

THE Royal Dublin Society, or what remains of its independence in council and action, as also in membership, has made a vigorous protest, and endorsed it by a weighty and influential vote; but, alas! the vote is only the vote of the trusting and the betrayed, who believed in the promises of the Government, as interpreted and fulfilled by the crafty manipulation of the subordinates of the South Kensington Science and Art Department, acting in conjunction with their agents in Dublin within the walls of Leinster House.

Throughout the years 1876 and 1877 we devoted several articles to the *pros* and *cons* of the Science and Art Museum project, as formulated in Lord Sandon's letter, and previously prepared, for his lordship's letter was only the natural result of some feelers previously thrown out, and official and unofficial overtures from this side of the Channel. The Council of the Royal Irish Academy narrowly escaped being entrapped in the amalgamation scheme designed for its affiliation to or absorption in the Royal Dublin Society, as a preliminary to its intended annihilation as an independent body. The moving spirits of the Royal Dublin Society in the council and in the service of the body had golden visions, and some of them have already received their reward, and others have been looking anxiously forward. We are certain that the "great expectations" in more ways than one, in regard to the society as a whole, and some of the council in particular, will never be fulfilled. We indicated and foretold, in our articles two years ago and upwards, as well as on later occasions, what was aimed at—the centralisation of our

only native historic institution of worth, and the quartering of a number of Scotchmen and Englishmen, nominees of the South Kensington Department, in the Irish branch establishments.

In the Blue Book or "Statement" issued on behalf of the Royal Dublin Society, the blurred and chequered history of the negotiations may be read; but, to use a common expression, were the thoughtful man to "read between the lines," much more may be gleaned than what appears at first sight. The correspondence contains unmistakable internal evidence that a large amount of unofficial and personal correspondence has passed between Dublin and South Kensington, and that the latter department was kept well posted by some person or persons from the vicinity of Kildare-street. The act that was framed for the transferring of the departments to the control of the South Kensington authorities was hastened as much as was possible, and framed in a very cunning manner. Promises were kept dangling in the meantime, and distinct and conclusive agreements evaded, so when the act was pushed through, at length South Kensington had the law and the laugh on its side, and the poor Royal Dublin Society the pie-crusts. For the Royal Dublin Society as an old institution we have always had the greatest respect; but we must confess we have little pity now for a number of the members of the council and a large body of the rank and file who, in spite of repeated warnings, failed in their obvious duty.

Respecting the final proposals on the part of the Government, accepted by the Royal Dublin Society, and ratified at the meeting of the body held on the 8th of March, 1877, we wrote these words:—

"These final proposals on the part of the Government having been accepted by the Royal Dublin Society, we suppose the controversy is at an end. The society has certainly succeeded by bolding out in obtaining better terms than were first proposed by the Government; but the fact is clear, the Royal Dublin Society after nearly a century and a-half of existence, has ceased to be an essentially national or local institution. Its objects may indeed be in the future as in the past national, but its management will no longer be local. In a word, the Royal Dublin Society has become centralized and will be controlled from South Kensington."

Have not our words been verified? Yea, and the Society is still being mischievously controlled at the present moment, although the agreement on the part of the Government remains unfulfilled, and although an act is enabling the South Kensington magnates to brush aside the solemn promises of the Government. Again and again further on in the year we adverted to the position of the Royal Dublin Society, and when the threatened encroachment on Leinster Lawn for the proposed new buildings was mooted, we devoted an article to the subject, touching at the same time on the surroundings of the Science and Art Museum scheme. On the 1st of November, 1877, we wrote these words:—

"As the case stands at present, the new arrangement has its inherent defects, as well as the original Lord Sandon scheme. We went in for an independent National institution, and we still go in for it, and not one entirely controlled from South Kensington; but it is strange—passing strange, indeed,—that many of those who are dancing around the Leinster Lawn encroachment, and acting the sentimental patriot, find it convenient to ignore the major question of South Kensington centralisation and control. Institutions which are governed from outside the country by strangers must be always so, and of little benefit. A large ornamental staff is next to useless, and when they have no native sympathies the native interest is sacrificed to the personal. An



Irish Museum of Science and Art needs to be a practical entity, worked in the interest of the people of this country, and particularly the rising generation, and not an institution got up in the interest of a section, and that section the chief salaried officers. Art and science are certain to pine eventually under such a system, where national or native-born instinct is ostracised or ignored, and the indigenous creation is replaced by a changeling."

Have not the speeches and resolutions, and indeed the whole voice of the meeting of the Royal Dublin Society on the 20th ult. proved the truth of our warning voice? The cuckoo laid her egg well—indeed, we might say several cuckoos have laid their eggs in the holes of the Royal Dublin Society, and the brood of indigenous birds are tumbled out of their nests to make room for the ravenous fledgelings of the South Kensington Department. The beginning of the end has only commenced, but anon we shall soon hear that "the Campbells are coming" in droves.

One more extract from an article later on than the above, in respect to the new Royal Dublin Society under the accepted scheme:—

"The die is cast, and we hope the members of the new Royal Dublin Society (exclusive of those who are interested in honours and appointments), will, in a short time be as satisfied with the working of the new body as they were with that of the old. Some or several members will, we have no doubt—in combination with hundreds of their countrymen outside the ranks of society—have reason to exclaim with the old Irish proverb, that 'a bird in the hand is worth two in the bush.' The bird in the hand [once] has, however, flown: it was an Irish bird, and it is to be feared it will take a long time before the feathered tribe of the South Kensington aviary can match it, taken singly or in chorus. Metaphor aside, we have contended all along for nothing more than for what Lord Charlemont contended when he said 'Ireland should be served in Ireland'."

We might quote from a dozen of articles which appeared in this journal *re* the Science and Art Museum Scheme, and its bearings on the Royal Irish Academy and the Royal Dublin Society, proving the persistency and consistency as well as the truthful forecast evidenced in our remarks, which time has fully confirmed in almost every particular. We did not doubt the *bonâ fides* of certain members of the Government, but from first to last we entertained well-grounded suspicions of the magnates or subordinates of the South Kensington Department, of whose double dealings and plannings we have had previous knowledge and experience on both sides of the Channel. Were we disposed we might prove the utter unfitness of some of the South Kensington officials for their position, and the several acts of jobbery that have signalised the career of that department, of moneys lavishly wasted in the name of science and art, but devoted otherwise for propping up ambition and incompetency, and making warm nests for "parents, friends, and relatives." We are not blind to some public benefits obtained by the existence of the South Kensington Department, and, from time to time we have (as we may again) pointed out these advantages; but if there be one department more than another in London, and in close connection with the Government, which requires a swift overhauling and reorganisation, it is the South Kensington Science and Art Department.

Let us see now how stands the case between the Royal Dublin Society and the Government. The act of 1877 and the written agreement of same year between the delegates and the Government, provided that the Royal Dublin Society should be furnished with proper appointments in Leinster House, with adequate accommodation for the per-

formance of its functions, including those of agriculture, science, and art; and that the scientific transactions should be printed for five years. A site was to be provided for agricultural shows, and compensation given for the loss that might be incurred in removing from Kildare-street. Two years have elapsed since the treaty was agreed to—the Government being represented in the regulations by the South Kensington Department—but the agreement has remained up till this unfulfilled. The South Kensington magnates assume they are in entire possession of the building, and the society is unable to obtain a single room in Leinster House for agricultural purposes. Though ample accommodation was solemnly promised for the discharge of scientific duties, the South Kensington authorities fail or refuse to fulfil their pledges. The scheme of agreement between the Government and the society included the appointment of a "Board of Visitors," who were, on behalf of the society, to "aid in the administration of the Science and Art Museum, the Natural History Collection, and the Botanic Gardens." It is over twelve months since this board was constituted, but a studied resolve has been shown to eliminate every bit of separate life out of the old society, for no opportunity has been given this board to perform its functions. In fact the members of the Royal Dublin Society have begun to be treated as strangers and intruders by the underlings of South Kensington; and the very porters of the society have had to clear out of the basement of Leinster House to make room for the employés of the South Kensington magnates. Several other signs of precipitate usurpation, dictation, and incivility might be mentioned, and this, too, be it remembered, before Government has fulfilled its solemn pledges. Need we wonder that, in the light of these matters, the following resolution was triumphantly carried at the meeting of the society held on the 20th ult.—a resolution, as the proposer said, embodying the principles of profound distrust in the Department of Science and Art:—

"That the council shall have power to negotiate on the part of the society, and to conclude an arrangement under which the offer of £25,000 for clauses 9 and 10 of the agreement of 5th March, 1877, and of so much of clause 1 as relates to agriculture shall be accepted, provided that Lord Sandon's letter and the agreement of the 5th March, 1877, shall be previously re-affirmed so far as the council deems the society interested therein, and that those parts thereof which might, and as the society thinks ought, to have been before this carried out, shall either have been previously carried out or secured to the society to the satisfaction of the council in the sense in which such parts of the agreement were interpreted by Sir Michael Hicks-Beach, Lord Sandon, and Mr. W. H. Smith to the delegates who negotiated the agreement."

The above was carried by a sweeping majority of 169 to 9; but the spirit exhibited at the meeting on the 20th ult. should have been shown long since, and the control of the South Kensington Department and its centralising policy sternly resisted. We will repeat here that while we are sincerely sorry for the fate of the Royal Dublin Society, we have little pity or respect for that quota of the council and the society who have betrayed their trust; and find themselves now betrayed in turn. We were strong advocates in favour of a Science and Art Museum established on a proper basis, and for an Art School commensurate with the importance of the capital of this country. We are not clannish in the county or baronial sense of the term, but we

hold that a native institution should be managed and worked chiefly by native intellect.

The Royal Dublin Society could boast of nigh a century and a-half of an honoured life, but it is melancholy to reflect that its own guardians have, with their eyes open, been instrumental in dealing it its death-blow as a native and distinct body. Sentinels who neglect their duty or fall asleep at their post, deserve to be shot, and have often been so treated; but in the doom that possibly awaits the Royal Dublin Society the innocent have suffered, and will still suffer, as well as the country, and some of the guilty will be visited perhaps with no heavier punishment than the twinges of remorse. A few appointments and honours in addition to those already made, bestowed, or promised, may be given to cheer the path of the recreant few whose private communicative industry and advice, and public "masterly inactivity," emasculated the Royal Dublin Society, and handed over its dearest interests to the tender keeping of the South Kensington authorities, in whose nostrils everything stinks that is racy of Irish soil.

#### THE MELBOURNE INTERNATIONAL EXHIBITION OF 1880.

ALTHOUGH it is a long way from Dublin to Melbourne, still the contemplated Great Exhibition for 1880 possesses no small interest for Irishmen, for the footprints of the Celt are to be found almost everywhere in Australia, and in the legislature of the colony Ireland is not feebly represented. The forthcoming Exhibition will be on a very large scale, and will be held in buildings\* specially erected for the purpose, the erection of which, we believe, has already been prepared for or actually begun. It would be impossible at this early stage of the movement to say how far the spirit of enterprise in honest competition will inspire our manufacturers to send exhibits, but we think they ought to respond to the call, so that Ireland may appear in a really representative character. Facilities will be afforded for the forwarding of goods and in the obtainment of requisite space, &c.; and Irish exhibitors will find in the list of the commissioners and on the various committees, men whose names are familiar to them, and at whose hands they may expect fair dealing. Intending exhibitors need not be informed of the "regulations" concerning the despatch, reception, arrangement, and the return of the goods exhibited, and disposal of space, and other matters, as all this information is easily procurable in the paper issued by the commissioners. Other particulars may be obtained in respect to details from the Agent-General for Victoria, at Victoria Chambers, Westminster, London. For the information of the ordinary reader, we may briefly say that the intending exhibits are divided into ten groups, each group forming a number of classes, the entire numbering 82. The grouping is as follows:—1. Works of Art; 2. Education and Instruction—Apparatus and Processes of the Liberal Arts; 3. Furniture, and accessories; 4. Textile Fabrics, Clothing, and accessories; 5. Raw and Manufactured Products; 6. Machinery—Apparatus and Processes used in the Mechanical Industries; 7. Alimentary Products; 8. Agriculture; 9. Horticulture; 10. Mining Industries—Machinery and Pro-

\* A perspective view of which was given in IRISH BUILDER for November 1st, 1878.



ducts. It is well to observe that applications for space should be made not later than the 30th June next, and no articles will be admitted later than the 30th of August, 1880. Looking over the "regulations," we find that they are carefully drawn up with a view to the protection of all interests. The awards of merit will be made upon the written report of the jurors, who will be selected for their special qualifications for the task. Gold, silver, and bronze medals will be awarded to the successful competitors. The foundation stone of the building was laid on the 19th ult. by the Governor of Victoria, after which there was a public fête, attended by over 20,000 persons.

We hope a few leading manufacturers and merchants at least in this country will put in an appearance at Melbourne; and the more creditably they do so the better, as they may thereby lay the foundation of a trade between this country and the colony that may be both nationally and personally profitable. We trust that Dublin, Belfast, and Cork will send a number of exhibits, and that the representative industries of these Irish centres will present a creditable display at the Melbourne International Exhibition of 1880.

#### THE METROPOLITAN SCHOOL OF ART.

THE second term of five months of this school will commence on Monday next, as will be seen by our advertising columns. A day elementary class, at half-fees, has been opened for instruction on three days in each week in freehand elementary drawing, perspective, &c. The advanced classes are for students in drawing and shading flowers and foliage, &c., painting in water-colours, tempera, or oils. Figure drawing, painting from the antique and life—and lectures are given on anatomy applied to the Fine Arts. The school is open on five nights in the week, chiefly for artisans. Prizes are given by the Science and Art Department, consisting of gold, silver, and bronze medals, books on art, cases of instruments, &c. A limited number of free students, who have distinguished themselves in some branch of art, are admitted. A class is now established for students in training to become teachers, who are paid a certain sum to assist them during the period of study. It has been decided to have the prizes awarded in the present session distributed to the students in a public manner as heretofore.

#### THE MOORE CENTENARY.

At the meeting of the committee that took place on the 20th ult. at the Mansion House, under the presidency of the Lord Mayor, the hon. secretary (Dr. Norwood) brought up the report of the sub-committee appointed to draw up the plan for the celebration. It was as follows:—

"Your sub-committee beg to report that the following propositions were, after full deliberation, unanimously agreed to:—1st. That while not assuming to control or direct individual action, the Centenary Committee accepts no responsibility save in connection with its own programme. 2nd. That the chief feature of the celebration shall be Irish music and the poetry of Moore. 3rd. That the Centenary Festival shall take place on Wednesday, the 28th May, 1879, the hundredth anniversary, of the illustrious Thomas Moore. Following the above propositions, your sub-committee unanimously recommend that Lord O'Hagan be requested to deliver an oration, and that Denis Florence M'Carthy, Esq., be requested to write a Centenary Ode, and that the day be apportioned as follows:—Noon, oration, to be delivered in such public building as may be determined on. Afternoon, three to five o'clock, grand concert of music associated with Moore's works, the ode to be recited between the parts. Evening, half-past seven o'clock, a grand concert of

a popular character, to consist exclusively of Moore's melodies, to be given in the Exhibition Palace. Your sub-committee consider that a Moore collection, similar to the Byron collection exhibited in London two years ago, would be viewed with interest, and recommend that the Lord Mayor do make known his readiness to receive at the Mansion House any such relics of Moore as may be in the possession of private parties, and may be lent for the occasion, and that the committee do enter into communication with the council of the Royal Irish Academy on the subject. Your sub-committee further suggest that if any funds remain after all necessary expenses for the celebration, they shall be devoted to remodelling and recasting the statue of Thomas Moore in College-street."

During a lengthened discussion several suggestions and propositions were made, but the definite resolutions carried at the meeting were as follows:—

On the motion of Mr. Gernon, seconded by Mr. St. John Brennan, it was resolved—

"That Mr. J. T. Gilbert, Professor Hennessy, and Mr. W. J. Corbett be appointed a sub-committee for the purpose of conferring with the committee of the Royal Irish Academy and other bodies of individuals with reference to a Moore Collection, and to take such steps as may be necessary to conform with that feature of the programme."

It was also resolved—

"That the following gentlemen be a musical committee, with power to confer with the leading musicians, and make such arrangements subject to the approval of the working committee, as may be necessary to give effect to the concert part of the programme—Sir Edward Lee, Mr. W. Armstrong, Mr. T. D. Sullivan, Mr. William Wilde, Mr. P. J. Smyth, M.P., and Mr. St. John Brennan."

In reference to the last sentence in the report of the sub-committee it was agreed after some discussion, if there were any funds remaining after the necessary expenses were settled, they should be devoted to the putting up of a new statue to Moore "if possible in substitution of that in College-street." The work of the sculptor Moore, in honour of his political namesake, is certainly not a fair reflex of the poet; but the deceased artist, though he failed in this instance, executed other creditable work. It is not a gracious task for Irishmen to degrade the memory of the artist by pulling down his work or burying it out of sight. We would like to see some middle course adopted of getting over a possible difficulty or difficulties, for we are not quite clear if there would not be some legal difficulties in the way of removing the present statue from its site in College-street. Apart, however, we trust the name and fame of Thomas Moore will be worthily honoured at the forthcoming centenary.

In a letter to the honorary secretaries, Mr. Denis Florence M'Carthy writes:—

"I rejoice to hear that the centenary of Thomas Moore will be duly celebrated on his birthday in his native city. Ireland owes a deep debt of gratitude to one who, as fitly described on his tomb, is the poet and patriot of his country. His genius and patriotism—and they are nearly inseparable—have been of incalculable service in upholding intellectually and politically the claims of his native land, and it is but an act of the barest justice that his fellow-countrymen, however or wherever scattered, should join in honouring the memory dear to them all, and the glory of which they are all partakers."

At a meeting held on Tuesday last, Mr. Gernon said—Dr. Norwood mentioned that he feared some Act of Parliament would come in the way of the removal of the present statue of Moore. It appeared to him that before they went any further in holding out hopes to the public that this statue should be demolished and a new one substituted—they would know their position and the position of the Corporation in regard to it and the Act or Acts of Parliament dealing with the public statues of Dublin. He suggested that the matter should be referred to Dr. Norwood.

Professor Hennessy said it occurred to him that the present statue being erected on ground under the control of the Corporation,

it was quite within their power to remove it or, indeed, any object erected in the streets of Dublin which the citizens as a mass did not view with favour, and if they did not melt it down, to substitute for it a statue which would meet with the approbation of the citizens whom they represented.

Mr. Gernon said another difficulty was that if the Corporation saw their way to demolishing what was the object and the result of the subscription of a number of citizens heretofore, would the question of compensation to these subscribers arise, or would they object to having their subscriptions battered to pieces.

The Lord Mayor said he thought there was very little use in their discussing this question. There was, no doubt, an Act of Parliament in existence preserving such monuments, and it was very necessary, for the Corporation was a changing body. The only way in which it could be removed would be by the wish of the Corporation, expressed by resolution of council, and with the consent of the trustees, but to demolish it without the consent of these parties would be *ultra vires*. He thought the matter should be left to Dr. Norwood to report to them at their next meeting as to their position in the matter.

The general committee meet ever Tuesday at the Mansion House.

#### TRACTION ENGINES IN THE STREETS.

A CASE of some importance came before the magistrates of the Northern Divisional Court on the 20th ult. Duncan Murphy, 2 Charlemont-parade, North Strand, was summoned at the suit of Inspector Devoy, for that he, being the owner of a locomotive engine, propelled by steam, did allow it to be in motion in the streets without any person preceding it on foot at not less than 60 yards, and without any person carrying a red flag with which to signal the driver of the locomotive when it became necessary to stop, and without any person employed to assist certain horses and carriages which required to be assisted owing to the passage of the locomotive. Mr. S. L. Anderson appeared for the police; Mr. J. A. Curran, instructed by Messrs. Ennis and Son, defended. The summonses were brought under the 28th and 29th Vic., c. 83—an act passed in the year 1865. Mr. Curran raised a preliminary objection. Each of the offences set forth in the summons—namely, the not having a man 60 yards in front, the not having a red flag, and the not having any person employed to assist in the event of horses taking head—was distinct, and the three should not have been mixed up in the same summons. After hearing the evidence and counsel, Mr. O'Donel, the presiding magistrate, said that the first summons certainly contained a number of cases, any of which was sufficient for a penalty of £10. The first witness had proved that it was not necessary for the signalman to signal, for at the time the car passed him the horse had not become restive. For the same reason he was not required to give any assistance to the horse. It had also been proved that a flag was displayed. But it was quite a different case with regard to the fact that no assistance was given to the other horses that became restive. This was a different transaction, and should not have been mixed up with the others in the summons. There was a joining of different transactions, and on this ground he considered that he was justified in dismissing the summons. In the second summons there was a clear and distinct charge, and he considered that the case had been proved, and he would convict accordingly. The holding up of the whip was a sufficient signal. As this, however, was the first case of the kind that had come before him, he would inflict a mitigated penalty of £5. In the third case he would inflict a fine of 5s. as "Duncan Murphy, Dublin" (the inscription on the engine), could not be considered a sufficient address.



## ENGINEERING AND ART.\*

"ENGINEERING," as the word is commonly understood, may be considered to be the science of "construction," and an engineer is likewise understood to be one who practically applies the theory and science of construction to the every-day wants and requirements of our lives. "Engineering" is a very comprehensive word, including, rather widely, all matters relating to the formation of roads, bridges, canals, docks, harbours, lighthouses, mines, drainage, waterworks, sewers, fortifications, building, machinery in general, &c. Properly speaking, engineering is divided into two classes, viz., civil and mechanical engineering. In the first are comprised road-making, bridge-building, canals, docks, harbours, waterworks, drainage, mines, &c., and all the other works which may be classed under the head of railway, hydraulic, and mining engineering; whilst the second is principally connected with the manufacture and use of machinery, the working of metals, the construction of railway plant, steamships, guns, armour plates, &c. In works of the first class the "contractor" plays an important part, as he it is who executes the work from the designs of the engineer, and on his ability and good management the success of many undertakings very materially depends. In the second class, however, the case is somewhat different, as the mechanical engineer is very generally both designer and executant of the work he undertakes. Thus much for the engineering of the present day, which may be said to have taken its stand as a distinct profession in England about the middle of the last century, and has since, by its varied achievements, done so much for the world at large—much for comfort, much for luxury, much for wealth, but little, alas! for "art." All must admire the wondrous powers of such magicians as Watt, Telford, the Stephenson, Brunel, &c., and all will admit that they and their works have wrought an enormous amount of good; yet we must admit that though their works contain a vast amount of the *utile* they have little of the *dulce* about them. Such, however, was not the case with the engineers of antiquity, who not only constructed works of pure utility, such as the harbours of the Phœnicians and of ancient Greece, the bridges of boats made by Xerxes to transport his army into Europe, the canal across the isthmus of the peninsula of Mount Athos, the aqueducts, roads and bridges of ancient Rome, but they constructed or assisted in the construction of works which are now looked upon as the triumphs of art (architecturally), such as the temples and pyramids of ancient Egypt, the palaces of Nineveh, the splendid buildings of Greece and Rome, and in later times the glorious cathedrals of Europe and of our own country.

Engineering is undoubtedly the oldest and most universal of all the sciences, and in a certain sense must be considered to be the parent of architecture, and to be coincident and coexistent with art; in some cases it is art itself. Engineering is a universal science; for, though instinctive in man, it is also instinctive in other animals. Many animals have a very decided instinct, even talent, for engineering, and man has even condescended to learn from them. "Art" is the result of the endeavour of the human mind to achieve the perfection of beauty, whether it be in form, colour, or sound, and, like engineering, it is universal; but, unlike engineering, it is strictly confined to man, and is the result of that power of selection that man, of all animals, alone possesses. Many animals, birds, and insects execute work which rivals and excels the best and most delicate work of man, but which, although artistic in result as to form or colour, is not art in itself, and birds or insects cannot be credited with "art," as they only follow a line of action they have no will or power to alter. The word "art," as generally understood, is applied to all such matters as music, painting, sculpture, architecture, medicine, agriculture,

&c., and may be divided into two classes, viz., "fine art" and "useful art." Music, painting, sculpture, architecture, &c., are specifically termed fine art. Medicine, agriculture, &c., belong to useful art. It is difficult, however, to define exactly where "fine art" ends and "useful art" begins, the two being, as they ought to be, so closely united. "Art," in the abstract, may be considered to be that which gives pleasure to the purely mental faculties as opposed to the purely animal passions. In this sense we view and accept the mental pleasures afforded to us by music, painting, sculpture, or literature, in contrast to the bodily pleasure we obtain by warmth or coolness, eating and drinking, rest, &c. Again, the pleasures afforded by art are not confined to individuals or nations, but are universal, whilst those which are corporeal are, for the most part, personal and selfish. The beauties of nature, such as are seen in fine landscapes, glowing sunsets, the flowers, the songs of birds, &c., yield pleasure to all, and of them there is no monopoly, and therefore they belong, in the truest sense, to art; and it is in this sense, and with this aim, viz., that of giving the greatest amount of pleasure to all, that the painter, the poet, the musician, and the architect should work. The mental pleasures which are embodied in the word "art" reach us chiefly through the eye and ear, the organs of smelling, tasting, and feeling ministering more to our bodily pleasures. Of the two which we may call the artistic sense, viz., seeing and hearing, the one which concerns us at present is that of "seeing," for it is by means of sight that we learn to appreciate those attributes of "art" that are most nearly connected with works of construction, viz., sublimity, beauty, grace, harmony, picturesqueness, proportion, order, and fitness; as, for example, the agreeable effect designated by "fitness" is an artistic pleasure which may be called the æsthetic of the useful; as, when a work is not only done effectually, but done with the appearance of ease, or the total absence of restraint, difficulty, and pain, we experience a delight quite different from the mere satisfaction growing out of the end obtained. Much of the pleasure of architectural support is referable to this source. Among the pleasures that are afforded by artistic arrangements may be noticed the sense of "unity in multitude" arising when a great number of things are brought under a comprehensive design, as when a row of pillars is crowned by a pediment. The use of simple figures—the triangle, circle, square, &c.—for enclosing and arranging a host of individual parts has a tendency to make an easily apprehended whole out of a numerous host of particulars. In all large works abounding in detail, we crave for some such comprehensive plan whereby we may retain the total while surveying the parts. A building, a poem, a dissertation, or a speech should have a discernible principle of order throughout, the discernment of which gives an artistic pleasure even to works of pure utility.

Having given you thus briefly an outline of what is art, let us now proceed to consider my third point—viz., are engineering and art of service to each other, and can they be united? I think, perhaps, it will be as well to sub-divide the question by seeing, firstly, whether engineering and art are of service to each other, and, secondly, can they be united? Let us then begin by considering how art is benefited by engineering. Engineering benefits art when engineering is in itself good and right, and when it does not benefit art, it is because it has been wrongfully and improperly applied, and I must ask you to take this remark at what it is worth, for time will not permit me to go fully into the point; but, as an instance of the good that accrues to "art" from engineering, I may refer to printing, and its attendant belongings. How much does art owe to it! Truly, in the days when printing was unknown, there were then, as now, poets and philosophers who expressed their thoughts in poetic language, and chronicled in strong prose the actions of their fellow men. But to how limited a number was the pleasure their

works afforded confined, as compared with the countless thousands who now delight in their genius? Then every copy had to be painfully transcribed, each copy taking months, perhaps, to complete. Now, by the aid of engineering (machinery) hundreds of copies can be supplied daily. Engraving, again, is an art that has greatly benefited by engineering science; for when it was, as it used to be, confined to copper-plates, comparatively few copies could be produced. The copies thus produced were necessarily so costly that only the wealthy could obtain them. Now, by using steel plates and the electrotype process, the copies are so multiplied, and thereby cheapened, they are within the reach of all. Engineering affords great facilities for reproducing beautiful form and material, as, for instance, in such matters as porcelain and glass ware, iron and bronze work, textile fabrics, &c., &c., thereby affording pleasure to many. But it may be, as it has been said, that all this tends to vulgarise art, and that machinery-produced articles, however beautiful, are not artistic, because they have been produced by machinery. This argument (I speak with all deference) is, I think, very fallacious. If a vase or a cup is in itself artistic in design, and is good art, so are equally so the twenty thousand copies of it, provided they are exact copies, such as machinery has the power of making. And, again, a gardener produces from a chance seed, or, by care in cultivation, a flower or plant that has some especial point of beauty, and for which he obtains a very large price. By-and-by, from cuttings or other means of propagation, the plant or flower becomes common, and can be bought for as many pence as it cost pounds before. The plant or flower has not changed; it has just the same beauty as it ever had, but instead of pleasing only a few, it pleases many. And it is on the ground that they give mental pleasure to many that I claim for the multiplied copies of an artistic original the right to be themselves considered artistic. Engineering itself, however, is not artistic, nor does it directly produce art, but it does disseminate it, and therefore engineers may very fairly be said to benefit art.

But now let us consider how art reciprocates the benefits she receives from engineering. In the earlier days of engineering, art certainly was of great service to engineering by teaching those who practised it to clothe their works with beauty; it taught them, when they wanted a vertical support, to give it a tapering form, to give the gentle swell of the entasis to the column, thus satisfying the eye's sense of beauty and grace; to build the temple, the palace, and the cathedral all with proper fitness, and all with beauty. Though engineering and art are, and have been, co-existent, art is the master, directing and guiding engineering into the right paths; and while engineering acknowledges this mastership of art all is well; but when, as is the case in these modern times, engineering strives to obtain the mastery, the result is chaos as regards art. Modern engineering no longer pays allegiance to art, and arrogantly considers that it can do quite well without it, and hence it is that we have gone on with an increasing loss of beauty in the works of our modern engineers (this remark, however, applying only to the civil, and not to the mechanical engineer). The modern engineer seems utterly to ignore beauty of form; if he has to use a vertical support he will probably make it of the same thickness all the way up; if he wants a buttress, he will put a great lump of masonry or brickwork in, without thought as to whether it will look ill or well, but calculated, I grant you, to do to an ounce what it has to do. There is an immense amount of thought in their work, but no mind—I mean in an artistic sense; and even the thought they give to their work is of a sordid kind; for while they study how to use their material economically, they omit at the same time to study how to make their work pleasing, thus leaving half their work undone. I admit that engineering possesses a strong point of affinity

\* By Mr. C. H. Driver. Read at Civil and Mechanical Engineers' Society.



to art in its truth, and by this I mean the honest construction employed by engineers in their work, never disguising or hiding it, but letting it be plainly visible to all; and there is a good honest purpose in what they do, and the sentiment of reality and truth, as opposed to fiction and falsehood, appealing as it does to our practical urgencies, disposes us to assign a high value to every work in which truth is strongly aimed at, and to derive an additional satisfaction in work in which fidelity of rendering is induced upon the charms peculiar to art. But while we admit and admire the truth of the engineer's work, and give them their due meed of praise for what they do, we must not forget at the same time to blame them, in that they leave so important a part of their work undone—viz., the making of it artistic. To my mind it is very nearly of equal importance that a building, a bridge, or whatever it may be, should be of good form and pleasing to the eye, as to be strong. There is an impertinence and brutality and want of regard for the feelings of others in many of the erections of late years—the work of modern engineers.

Can engineering and art be united; and if so, how? My answer is, "Yes," and by means of architecture; for though, as I have said, architecture is to be considered as the child of engineering, yet it is through the graces of that child that we must hope to again reconcile and unite art with engineering. I say "again reconcile," for in old days art and engineering were united, and architecture was their offspring. We moderns have divorced them; let us re-unite them. But how will architecture unite the two? Engineering is the science of construction; architecture the art. Engineer is the hard matter-of-fact, uneducated man of business; architect is the cultured and polished gentleman. Architecture is educated engineering. A man may be honest, bold, truthful and business-like, but hard, selfish, and inconsiderate, with no knowledge or care for the beautiful. He is the modern engineer. Another may be honest, but timorous, uncertain, and unbusiness-like, kindly considerate with respect to the feelings of others, and with a great desire for the beautiful, often failing from lack of power. He is the modern architect.

Perhaps you will think I do not draw a flattering picture of the representatives and practisers of that art by which, as I have already told you, art and engineering can be united. Well, that may be true; but it is only true as regards the modern architect, as my first picture is of the modern engineer. The modern architect is as the times, his own want of pluck, and the modern engineer have made him; he, if I may say so, has been bounced and bullied out of his proper position by the engineer; and much that of late years has been done by engineers should have been done, and would have been better done, by architects, if they had but retained their proper position by keeping themselves abreast of the times. I have given you a figurative sketch of the modern engineer and the modern architect. I will give you one as to the past. Here we have a man who is honest, bold, and truthful, certain and business-like, with kindly regard for the feelings of others, an intense love and knowledge of the beautiful, with a desire that all should participate in the pleasures it affords, and having the will to do good work, has also the power to execute it; he is the architect and engineer of old, the architect and engineer being one.

I have said that architecture is educated engineering; to prove this, I will give a brief description of what is called architecture. "Architecture is described to be the art of building or construction, and, when taken in its widest sense, may be regarded either from an artistical, a scientific, or a utilitarian point of view. In the first case, as a means of giving external form and sensible expression to mental conceptions or ideas, it is a branch of æsthetics or of the fine arts, properly so called, and takes rank

with painting and sculpture; in the second case, it consists in a knowledge of certain laws of physical nature, and consequent power of calling them into play, or counteracting their operation, and is, consequently, a branch of that wider department of science to which the name of "mechanics" is given; whereas in the last it becomes a practical art, which has for its object the application of the principles, both artistic and scientific, which architecture embraces to the elevation of national and individual character, and the increase of the physical comfort and well-being of mankind. But, though it admits of being thus analysed, or separated in thought, it must not be imagined that architecture can exhibit in practice any one of these principles to the exclusion of the others. . . . But, though a strict adherence to all the principles of architecture be indispensable to every genuine architectural structure, whatever be its object, it by no means follows that equal prominence is to be given to each of these principles on every occasion. If a building has for its primary object the expression and commemoration of such feelings as grief, gratitude, devotion, or the like, this object manifestly will be best attained by subordinating the scientific and utilitarian to the æsthetic principles of architecture, and the reverse will be the case when mere convenience, and also, though in a lesser degree, when convenience, in combination with beauty or magnificence, is sought. This description of the principles of architecture applies, or rather should apply, equally to engineering. The distinction that now exists between the architect and the engineer never existed in former times. The old architects did not require the assistance of engineers in their foundations, nor did the old bridge builders need anyone to touch up, with a bit of gold, and a knob here and a boss there, their work to make it presentable. If we are over to hope that engineering and art will be united, we must begin by merging the two professions of architect and engineer into one. There can be no possible reason why, because a man makes a study of the strength of materials, and how best to apply them mechanically, he should neglect how to place them together artistically; or, because a man delights in beauty of form or colour in his materials, that he should neglect to learn the best mechanical way of using them also. The difference in the way an engineer and an architect would set about the same piece of work, if they had it to do, would, I think, be as follows—viz.: The engineer would begin by studying the purpose of the intended structure; then consider as to the best materials of which to erect it, and calculate to a nicety how little of each material he can use. If he wants a door, he puts in one; if he wants a window, a window is put in; but he never studies or thinks for one moment whether he can, by placing his door or window in some other position, improve the appearance without altering the utility of his work, and the result is, his work is as bald and ugly as possible. He then, perhaps, proceeds to, what he calls ornament it, by sticking on here and there a moulding, which, as likely as not, he places upside down, thus destroying the only grace his work possesses—viz., truth; and then says, with satisfaction, "See what we engineers can do; we want no architects with styles and orders to teach us what to do." On the other hand, the architect (I speak of the true architect) would first, like the engineer, consider well the purpose of his intended building, and like him, consider as to the best material to build with, and how best to use it. He also would place his doors and windows in their most useful positions; but, in addition, he would, from the first commencement of his work, have in mental view before him a certain effect, which he would strive to produce, and thus, while so planning his building as best to suit the requirements of the work, he at the same time makes it pleasing and artistic; and, when the work is finished, it needs not the extraneous aid of

moulding or applied ornament, for all that is wanted in that way forms part of the structure itself. It is common to find engineers twitting architects with their want of knowledge of scientific construction; but I think I can safely say of architects that they, as a body, have a far greater knowledge of practical engineering than engineers have of architecture—as their works show—the architect's failures in "construction" being as nothing to the engineer's failures in "art." I wish to say a word or two in praise of mechanical engineers and their works. I think there is often exquisite grace and beauty in the work they do, due to their observance of the rules of all good art. A good engine is a work of art, in that it is exactly adapted to its purpose; the work upon it is as good as can be done; it shows design, and has no part of it designed for mere ornament. I am glad to see that mechanical engineers have given over supporting the beams of their engines on Greek Doric columns, &c., which were usually out of all sort of proportion. I feel strongly that the differences that exist between the two professions would never have arisen had architects had the power to have resisted the first attempts of the unartistically educated engineers to put up buildings, bridges, &c.; but, when engineering came prominently forward in the early part of the present century, architecture was at its lowest ebb, and had lost a position with respect to engineering which it has never since regained. You will, perhaps, consider I have been trying to prove my proposition, that architecture is educated engineering, at the expense of the engineer; but, believe me, that it is not my wish. My wish is rather that, by uniting the good there is in the present two professions, making of them one profession, call it by what name you will, we may arrive at the result I seek—viz., the unity of Art and Engineering.

## ADVERSARIA HIBERNICA,

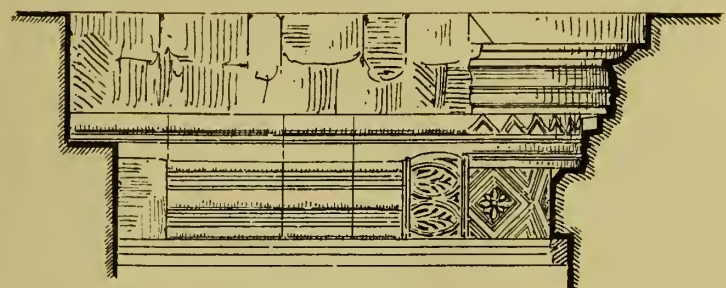
### LITERARY AND TECHNICAL.

HUNTERS after health or tourists or holiday visitors of late years have lively recollections of the cost of living at our British and Irish watering places, more particularly at the former. It was once pleasant to take a run, for the benefit of one's health, or merely in quest of the picturesque, but the pleasure is now rather expensive—not as regards railway travelling, but those frightful inflictions called Royal Hotels by our lakes and the seaside. If one escapes "tips," or giving gratuities to railway porters, it is hard to escape at hotels, from the head waiter down to the "boots." It is not enough for you to pay heavily for your rooms and your breakfasts and dinners, but the attendance and gratuities are made to swell up your bill. On the morning or evening of your departure you are pretty closely watched, and managers, stewards, waiters, chambermaids, "boots," and the "odd man" about the premises are sure to cross your shadow half a dozen of times for the pure purpose, of course, of bidding you good bye, and wishing you a safe journey! There is an advertisement before us as we write, of the year 1750, the spirit of which it would be difficult to meet with in those days. The Spa in Tralee, Co. Kerry, was during the last century a famous resort for a while; and the inhabitants and corporation of the town, to encourage visitors, were anxious to inform the public that moderate charges, with good living and accommodation, would be found in the town of Tralee. Here is how the advertisement ran:—"Tralee.—Whereas it is expected by the Corporation and inhabitants of Tralee, that many gentlemen and others intending to drink the spa waters contiguous thereto, will frequently resort to the said town for the accommodation of diet and lodgings, and in order that such persons may be fully satisfied that no exorbitant or unreasonable charges shall be made on account thereof, we, the undersigned inhabitants of the said town, do hereby agree

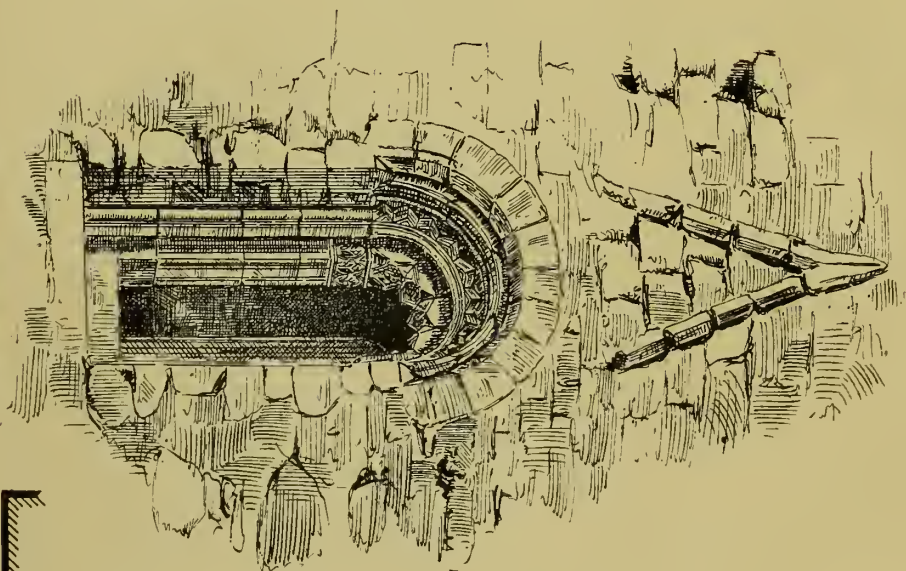


DOORWAY OF ROUND TOWER, KILBARR.

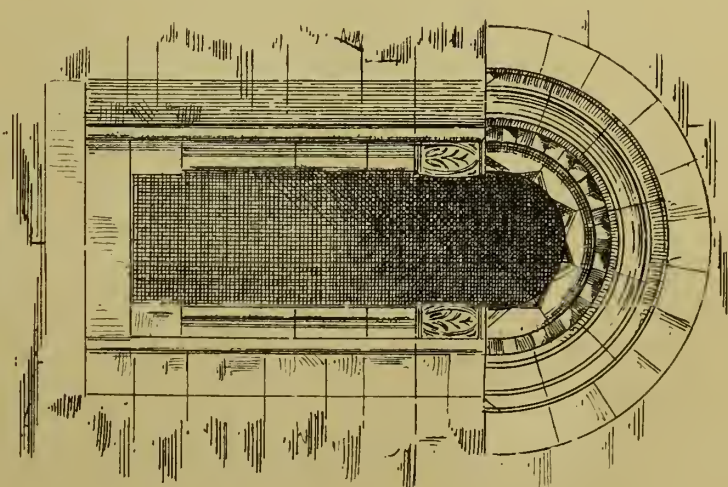
Measured & drawn by F. W. Lockwood.



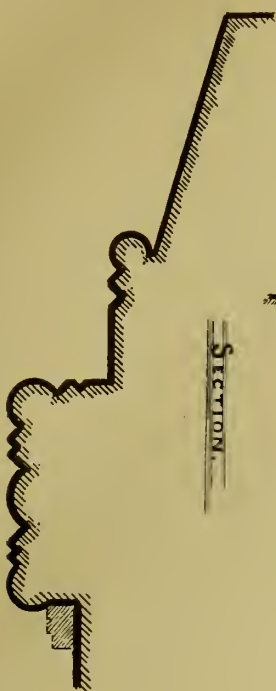
SECTION.



PERSPECTIVE.



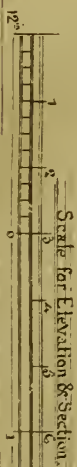
ELEVATION.



JAMB MOULD.



ARCH MOULD.



Scale for Elevation & Section.



Scale for details.



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to, and promise to abide by the following regulations,—that is to say the best lodgings in said town—that is one room furnished with bedding and other necessary conveniences, and also fire and candle light, at half-a-guinea a-week, and so in proportion downwards as to all other lodgings and all other articles, as the chief magistrate for the time being of said corporation shall adjudge and appoint. And as to diet, for dinner and supper 8s. British a week, and for dinner only 6s. British a week. N.B.—Assize times are excepted. John M'Donough, John Fitzmaurice, G. Connell, Denis Leavy, John Haly, Daniel Tuomy." When the judges came to the town on their circuit, it appears by the above that higher charges were made. Possibly the town during the assizes was crowded with barristers and attorneys, plaintiffs and defendants, witnesses, &c., and the worthy innkeepers were then justified in reaping a little better harvest. A dinner per head at present, including a little wine, often costs more at our watering places than the dinners for a whole week a century and a-half ago. The purchasing value of a guinea or half-a-guinea in 1750 was, it must be seen, very high compared with what it is now; but people, it must be allowed, were more primitive or pastoral in their tastes, and were content with substantial fare, to the exclusion of useless delicacies and so-called tonics.

In Dublin, in the above-named year, the assize of bread was as follows:—(June 29th, 1750), penny loaf, (wheat) 11 oz., 6 dr.; Fourpenny do., 2 lb., 14 oz., 7 dr. Sixpenny do., 4 lb. 6 oz. 3 dr. Twelpenny do., 8 lb. 12 oz. 6 dr. Penny loaf (household) 15 oz. 2 dr. Fourpenny do., 3 lb. 13 oz. 0 dr. Sixpenny do., 5 lb. 11 oz. 6 dr. Twelpenny do., 11 lb. 4 oz. 7 dr. Middleprice of wheat per quarter £1 19s. 6d. If provisions were cheap in Ireland a century and a quarter since, intoxicating drinks were too cheap, particularly claret and whiskey. The wages of the working classes were, however, very low, and idleness and crime were in abundance. Sanitary reform was undreamt of, and the major part of the medical profession were a parcel of patent quacks, who killed more than they cured, and whose system of curative medicine was a gigantic delusion, and an expensive and disastrous one.

In our note anent the ancient town of Bannow in our issue of the 1st ult., we gave some details of the remains visible several years since of the so-called "Irish Herculaneum." In addition to what we then furnished we will give a few more particulars, for which we are indebted to an account drawn up by the Rev. Robert Walsh, who made a visit to Bannow in 1826, and resided for some time in the neighbourhood. It is clear from what Mr. Walsh states that there anciently existed at Bannow a large and important town, and the reverend gentleman was anxious to excavate for "finds." A gentleman in the vicinity promised to assist with fifty men, but he did not keep his word, so what was uncovered to Mr. Walsh's gaze was owing to his own personal exertions. He writes:—"I cut across one of the hollow ways, and ascertained it was paved beneath the soil, and so had been a street. I dug into one of the mounds, and came to the foundation of walls of masonry, and so was convinced that they had been houses. I visited the church, and saw it was a very ancient structure. The windows were not the Pointed Gothic, such as were subsequently introduced by the Normans, but Saxon, similar to those of Cormac's Chapel at Cashel, and in that style of architecture known to have existed in Ireland long before the Invasion. I examined the inside and found it filled with sculptured ornaments, as remarkable for their antiquity as their beauty. Among them was a stone coffin or kistvaen, in the cavity of which was a receptacle for the head and shoulders of the man. Beside it was a baptismal font of very antique sculpture in relief. In fact, the whole appearance of the place—the impression that we were standing over a populous

city, which yet remained almost entire, with all its busy inhabitants, it might be, buried under our feet, gave to its present silence and solitude an interest greater, perhaps, than is attached to any other remains in the United Kingdom."

Mr. Walsh next proceeds to inquire into the history, as far as was ascertainable, of this submerged or buried town, which, certainly never up to the present hour has received that attention at the hands of Irish antiquaries it deserves. "It appears," continues Mr. Walsh, "to have existed as a place of note at the time of the Invasion [1172], and is mentioned both by native and foreign historians. Among the native historians who mentioned it is Maurice Regan: he calls it Bann. When the Anglo-Normans landed Regan was secretary to Dermot (Mac Murrough), and was an actor and eye-witness of the events of the Invasion. His work is exceedingly valuable as a document, and curious as a composition. It was written originally in Irish, but translated into French verse by some Norman of his acquaintance. His details are graphic, and his heroes make speeches, so that you become acquainted with events and heroes as those described by Homer. Sir James Ware says the name of 'Bannow' signifies 'auspicious,' and it induced the Anglo-Normans to land in its vicinity, as an omen of good success. In the Irish Annals of Innisfallen it is called 'the Bay of the Black Pig' from the multitude of these animals reared there by the Irish, a peculiarity for which the neighbouring county is still distinguished, where they are attended with the greatest care, and increase to an enormous size. It was situated at the mouth of a large inlet of the sea, in the barony of Bargie, about twenty miles south of Wexford. The bay was formerly entered by two channels, as appears by a map in the Down Survey in the Record Office, Dublin, and from its favourable situation for trade attained much prosperity."

An examination of the quit rent rolls at Wexford by Mr. Walsh showed that the buried town contained among others the following streets:—High-street, Weaver-street, Upper-street, St. Tullock's-street, St. Mary-street, St. Ivory-street, Lady-street, Little-street, &c. Slated houses, horse mills, gardens, and so forth are mentioned as paying quit rent, all indicating that ancient Bannow was at some early period a prosperous town. The place had also a charter of incorporation, and sent two members to the Irish Parliament, who were elected by the burgesses or citizens. This last evidence of its importance continued up to the period of the Act of Union, and a friend of Mr. Walsh's remembered when notice for the election was issued. "It was posted on the solitary chimney, as the only representative of the houses of the town. The burgesses were supposed to assemble round it. The members were put into nomination by Lord Ely, and so the form of election was regularly gone through, and for a series of years two representatives were returned to Parliament for one chimney." These two Irish M.P.s were certainly chimney ornaments in their way. It would undoubtedly be both interesting and satisfactory if we could know at what date the sands of Bannow began to encroach, and in what particular year did the town cease to be inhabited, or to witness its last family. Half a century ago a very extensive tract of fine sand existed at Bannow, and, owing to the wind, it was continually then, as subsequently, changing its place and form. In 1826 Mr. Walsh thus described the action of the wind upon the sands:—"I watched its progress as it rose in little columns like the sand pillars [of African deserts] on a small scale. It was driven about by the slightest wind in currents and eddies, and whenever it met an obstruction it formed round it as a nucleus, and in the course of a few hours materially altered the appearance of any particular spot." The harbour, as well as the old town, as we have previously stated, has in the course of time undergone extraordinary

changes, and on a small scale Bannow may be truly described as the Irish Herculaneum.

Some time since we gave a few particulars about the introduction of the potato into the British Islands, and its culture and consequences in Ireland. Here is what Gerard, an old herbalist, writing nearly three centuries ago, wrote of potatoes:—"Potatoes grow in India and other hotte regions, of which I planted divers roots (that I bought at the Exchange, in London) in my garden, where they flourished until winter, at which time they perished and rotted." Farther on he speaks of the method of cooking their exotic of that day:—"They were roasted in the ashes; and some, when they be so roasted, infuse and sop them in wine; and others, to give them the greater grace in eating, do boil them with prunes, and so eat them. And likewise, others dresse them (being first roasted) with oil, vinegar, and salt, and every man according to his taste and liking." Few imagined that the potato would subsequently become such an important article of food, and one also entailing so much misery by people's dependence upon it. The potato has had many defenders in Ireland, but it also had some fierce opponents in this country and outside. Long before the great potato failure of 1846-7 William Cobbett denounced the potato and the dependence of the Irish peasantry upon it. The late Rev. Caesar Otway, a racy native writer of antiquarian tastes, wrote in one of the early numbers of the *Dublin Penny Journal* an amusing article on "Potatoes," in which the virtues of the national root are defended against all odds. Cobbett in this sketch is introduced as counsel for the prosecution, and "Counsellor Mealy O'Murphy" is retained on behalf of his client, the potato. The words put by Otway in the mouths of both advocates afford a good illustration of what was wont to be said formerly *pro* and *con*, and often more politically than practically. H.

#### THE ROUND TOWER OF KILDARE.

THE Round Tower of Kildare—the doorway of which we now illustrate—appears to have been one of the last erected of these interesting structures. Whatever opinions may be held respecting the majority of these buildings, that of Kildare exhibits well-marked Romanesque features, though in proportions and general construction there is little else to distinguish it from those of the ordinary type. The character of the detail bears a close resemblance to that of Cormac's Chapel, the ruined church of Killaloe, and other Irish Romanesque churches. This tower, and the restored cathedral adjoining (now rapidly approaching completion, under the directions of Mr. G. E. Street, R.A.), form a very interesting group, which will well repay a visit.

#### THE ETHNOLOGY OF INDIAN RACES.\*

DURING fourteen years spent in India in the study of the geology of that country (said the lecturer), he had opportunities of observing the manners and customs of a number of races but little known. For the authenticity of the facts he was about to present he was himself, to a considerable degree, personally responsible. Since his return home he had not unfrequently heard the term Hindu used, as though it meant simply a dweller in Hindustan, and not merely a section of the people of that country professing a particular religion. There were comparatively few persons in the United Kingdom who fully realised the fact that a vast portion—many millions—of the inhabitants of the Peninsula were neither Hindus, Mahomedans, nor Buddhists. Collectively, that portion was

\* By Mr. V. Ball, M.A., F.G.S. Being the Fifth Afternoon Lecture at Royal Dublin Society.



spoken of as the aborigines or non-Aryans; individually, the tribal or race names by which they were distinguished were legion. He proposed to describe a few of the races with which he was personally acquainted. Recently he had the honour of laying before the Royal Irish Academy an account of the geographical distribution of ancient stone implements in India. The remarkable result had been arrived at that the Peninsula of India and adjoining countries were divisible into three distinct tracts, each characterised by containing stone implements of a particular type, and that those tracts overlapped one another towards the centre of the Peninsula. The polished forms of stone implement called celts were found in the Burmese and adjoining countries, and were spread thence towards the southward, and also westward into Bengal and the central provinces of India. In Sind, Beluchistan, and the north-western regions of India, and extending also into the central provinces and Western Beugal, were found implements of a wholly different kind. These were flukes of chert and flint, which were used as knives, arrow-heads, &c. In Southern India they found implements of chipped quartzite, which were likewise scattered about in the central provinces and in Western Bengal. One way of accounting for these distributions was by supposing that the Peninsula of India south of the Ganges was at one time an island detached from the Himalayas; that it was gradually raised, and that as adjoining countries became accessible successive waves of migration set forth from the central parts of India at different periods, representing stages of progress in the art of manufacturing stone implements. A second and more probable theory was that the central parts of India were rather points of convergence than of divergence—of immigration rather than emigration. Dr. Caldwell, missionary bishop in Southern India, the first of Indian philologists and the greatest authority on the Dravidian races, considered the four strata of the present Indian population to have probably originated in the following manner:—First and earliest, the forest tribes, such as the Kolas, Sontals, Bhils, &c., who might have entered India from the north-east; secondly, the Dravidians, who entered from the north-west, and either advanced to or were driven to their ultimate seats in the south of the Peninsula; thirdly, the Scythian or non-Aryan immigrants from the north-west; and further, the Aryan invaders with whom in the present lecture they had nothing to do. None of the peoples of the first two divisions had any written characters. Each of them had, however, a distinct language, while the languages bore well-marked affinities. The Munda family, which entered India first from the north-east, and introduced the art of manufacturing polished celts, claimed the first notice. From amongst the numerous tribes into which the family was subdivided he would select for description four—namely, the Sontals, the Hos, the Konwalis, and the Kenalis. The Sontals inhabited a strip of country in Western Bengal, extending from the Ganges about 300 miles south. Their villages were quite distinct from those inhabited by Hindus or other aboriginal tribes, and were generally formed of one long street. It was not uncommon to see the mud walls ornamented with grotesque paintings in bright colours. The magnificent work of General Dalton, of whom as an Irishman they might be proud, on the ethnology of Bengal, in which the tribe now referred to and many others were fully described, was too costly to be generally known. The Sontals were somewhat low in stature, and not unfrequently approached the negro in blackness. Their features were of a coarse type, and it was rare to see in either sex any approach to beauty. The nostrils were much compressed, the cheek bones somewhat high, and the lips thick and pouting. They were courageous and hardy, and, armed with only bow and arrows, did not hesitate, under certain circumstances,

to encounter the most formidable wild beasts. He had heard of a Sontal killing a tiger with an axe, and had seen one kill a large and powerful bear with an arrow. Sometimes it was stated that the British were responsible for the use of strong drinks by the tribes of India. That was a perfectly erroneous idea. From time immemorial the aboriginal tribes and others had been in the habit of distilling a spirit from the flowers of a tree, while others were addicted to a mild kind of beer which they made out of fermented rice. Although joyous in their cups and at their frequent festivals, in which dancing and religion were combined, the Sontals generally led lives of great toil, and enjoyed but poor fare. Their omnivorous propensities, however, secured food for them where a man of caste might starve. The Sontals reclaimed forests and planted their villages in secluded places, but were being continually outwitted and pushed forward into unreclaimed regions by the wily Hindu, who knew every turn of the law. The Sontals were truthful and straightforward dealers, and, oppressed by the burdens of the money-lending Hindus, had more than once murdered their oppressors, and troops had had to be sent to quell their insurrections. This tribe believed in the existence of good spirits, but their principal religious ceremonies were designed to ward off the malign influence of evil spirits. When in good circumstances they clothed their women liberally, and loved to adorn them with a multitude of heavy bracelets and anklets. Captain Sherlock estimated that the ornaments of a Sontal damsel weighed not less than thirty-four pounds. The Hos were at the beginning of the present century a scourge to the surrounding country, and had afterwards to be subjugated by military force. They were restricted to a tract of country included in the British district of Singhbhum. Marriages amongst them took place much later in life than in most oriental countries, owing to the fact that the bridegroom had to pay a considerable number of cattle to the father of the bride. The marriageable spinsters on hands were consequently nearly as numerous as they were in some countries of Western Europe that might be named. Elopements were not considered respectable. "Tell a Hos maiden," said a writer, "that you think her nice-looking, and she is sure to reply, 'Oh, yes, I am, but what is the use of it? the young men of my acquaintance don't see it.'" Three days after a marriage it was the correct thing for the bride to leave her husband, and for the latter to carry her forcibly back, while she strenuously resisted by kicking, screaming, and biting. This custom was probably a relic of former times, when wives might have been stolen from other tribes by immigrant Hos. A belief in witches was very prevalent amongst the Hos; and during the Indian Mutiny numbers of persons, supposed to be witches, were murdered by the Hos. The murderers were afterwards brought to justice by the British Government. The Konwalis were a wild race, living in the hills to the west of Bengal. Despite their savage nature they were truthful to an extraordinary degree. The Dravidians were the next race. A subdivision called Wraons occurred chiefly on the high plateaux of the western districts of the Chulin Nagpur province. They were hard-working cultivators, being in that respect vastly superior to many of the races he had seen. There was something very pleasing about their appearance, and many of the women were decidedly pretty. Their colour varied from black to light mahogany, and the cast of their features was so constant that they could easily be distinguished from other tribes. Their method of arranging their hair, the women with one-sided chignons, often decorated with flowers, and the abundance of bead necklaces and brass earrings and ornaments which they wore, served to distinguish them wherever they were met with. Attached to each village was a dancing ground where youths and maidens met, and love matches were made. This tribe ate everything—tigers, bears,

snakes, frogs, &c. Field mice were much esteemed, and it was usual for a young Wraon to present a dish of them to the girl he courted. The Khounds were chiefly found in mountainous regions on the confines of Orissa, the central provinces, and the north of Madras. Up to 1861 they carried on a system of sacrificing children in order to banish evil spirits and secure good crops. Were the strong arm of British power withdrawn they would resort to those practices again. With respect to the Nicobareso, or inhabitants of the Nicobar Islands, it was probable that the story of Sindbad the Sailor, and others in the Arabian tales, were derived from legends concerning them. There were Austrian, Dutch, and Danish settlements in the islands before they were taken possession of by the British in 1869, in consequence of the piracies previously committed by the islanders. The islands contained a population of about 8,000. Their houses were built on the sea shore on posts, and strongly resembled the lake dwellings of Switzerland. Their clothing consisted of a narrow sash which depended behind, and, in all probability, gave rise to the statement made by Ptolemy and repeated by Nicholas Fontana in 1647, that the islands were inhabited by men with tails, or satyrs. The inhabitants of the Andaman Islands had been isolated from all others for a long period. They differed from all other Asiatic races in having curly hair. They were in the habit of covering their bodies with various clays, which had given rise to different opinions as to their colour; but the fact was that when the clay was washed off they were exceedingly black. Husbands wore as ornaments the skulls of their deceased wives, and widows the skulls of their husbands. They were not cannibals, but lived on fruit and fish. He had been asked to say a few words about children having been found living with wolves as their foster parents, as had been from time to time reported in India. Six years ago, in a paper addressed to a learned society, he contended that the truth of these statements should be inquired into. His paper was burked, but Professor Max Müller took up the subject in the Academy. The story of Romulus and Remus was not by any means singular. Many other gods and heroes of antiquity were stated to have been suckled by wolves. All the recorded cases of children having been suckled and reared by wolves came from the province of Oude. This was possibly due to the fact that in that province the number of children carried away and killed by wolves was greater than elsewhere. In 1872 a statement went the round of the Indian papers that a boy about ten years old was burned out of a den in the company of wolves, and that he went on all fours and liked raw meat. He (Mr. Ball) wrote to the superintendent of an orphanage in Agra, who replied that they had the boy there, and that he was a perfect animal in his habits. He would not remain with the other boys, but hid in corners, and would not wear clothes. After about four months he got fever and died. The superintendent stated that they had had in the orphanage for six years another boy about fourteen years old, who was also found amongst wolves; that he could not speak, but expressed his feelings by sounds, that his civilization had so much improved that he liked raw meat less than he did, but that he still picked up bones and sharpened his teeth on them.

**BYRON MONUMENT.**—The monument to Byron that is being executed by Mr. Belt will shortly be cast in bronze, the full size model being already finished. The design was suggested by the line from "Childe Harold"—

"To sit on rocks to muse o'er flood and fell,"

and represents the poet seated on a rock, his head resting on his right hand, the elbow on the knee, and the left hand poised a pencil over an open notebook. The statue will be 9 ft. high, supported by a 10 ft. pedestal composed of a block of Penatelic marble, the tribute of the Greek nation. The site will be either at the top of St. James's-street, or in the Green Park, London.



## THE ROYAL HIBERNIAN ACADEMY EXHIBITION.

THE fiftieth Annual Exhibition of this body was opened on the 19th ult. by their Graces the Duke and Duchess of Marlborough, who were accompanied by the Earl of Portarlington, and were received by Mr. B. Colles Watkins, secretary—taking the place of the president, Mr. Thomas A. Jones, who was, unfortunately, prevented by illness from attending,—and by the following other Academicians:—Messrs. Jas. Brennan, Augustus Burke, Professor of Painting; P. Vincent Duffy, Thomas Farrell, Treasurer; Charles Grey, Alfred Grey, James Grey, Arthur J. Mayne, J. J. M'Carthy, Professor of Architecture, and James H. Owen. The Honorary Members present were—Chas. A. Cameron, M.D., Professor of Chemistry, and W. J. Fitzpatrick, LL.D., Professor of History. The Associates present were—W. F. Doyle, E. Fitzpatrick, and S. C. Smith.

This year's Exhibition contains between five and six hundred pictures, many of them excellent in their line, and from well-known artists; and conspicuous amongst the number are several Irish productions "racy of the soil." On an early occasion we will specify some of the pictures that are specially commendable, and at the same time avail ourselves of the opportunity of making a few remarks on the architectural and sculptural outcome, in connection with the other branch which almost exclusively constitutes the annual exhibitions of the Academy in these later years.

## A SANITARY REPORT REPORTED.

THE official report of the Public Health Committee, brought up at a meeting held on the 21st ult., is a model document for purity of style. It is a return of a week's work, which may possibly have been well performed, but not having seen the original document, we, of course, do not know to whom the credit is to be given for the literary part of the labour—the official reporter or the newspaper one. We print the statement as we find it reported, and it certainly is a caution in some respects:—

"Forty-nine infected dwellings were chemically disinfected, and 198 articles were purified in the hot-air chamber. One ton 10 cwt. of unsound animal food had been confiscated, and 16 samples of food had been collected for analysis. Thirty-one reports were received from medical officers and acted on. The committee ordered summonses to issue to 96 cases for non-compliance with sanitary notices. The Medical Officer of Health presented a report on cellar dwellings, which, if unoccupied at the passing of the Public Health Act, could not be occupied as dwellings. It was ordered that a list of those occupied now be made out, and kept for future reference. A report on the subject of a wooden shelter for families whose dwellings were being disinfected was considered, and a tender of Messrs. T. and C. Martio for one was accepted. Dr. Cameron reported that a head disinfecter had been appointed, and, with a staff of assistants, had disinfected and whitewashed a large number of houses in which cases of infectious diseases had occurred. The Medical Officer of Health also reported that he had applied to the police magistrates on yesterday, and obtained an order for the destruction of 7 cwt. of cocoa which contained poisonous matter. Applications for licences for slaughter-houses were submitted, but it was intimated that if any be in future granted it will only be for limited periods, and under stringent restrictions. Provisions of the South City Markets Bill, relating to this and other matters, were considered in conjunction with the report of the Law Agent on the powers being sought by the company. Some complaints regarding defective sewerage were brought under notice, together with reports showing that in each case the public sewer was in good order, and that the defect lay in the house drain, for the repair of which the owner was responsible. Instructions were issued to the Law Agent to institute proceedings and compel the owner to construct effective drains, and also to compel owners of private streets not in charge of the Corporation to make provision for drainage. Communications from the Local Government Board, in regard to the sanitary state of Kennedy's land, were considered, with reports showing that prompt means had been taken in regard to each case of sickness, that some deaths attributed to smallpox

were considered by the medical attendant as the result of fever, and that in a case of death from smallpox, in which a wake was said to have been held for two nights, the death was ascertained to have taken place in the morning and the interment before night on the same day. It was reported that there were now no cases of sickness on the land, but as several of the houses are considered unfit for habitation, the medical officers were instructed to report whether they should not be compulsorily closed."

The "head disinfecter" is certainly a very suggestive name, for there are a good many heads in Dublin, we opine, which would be the better of disinfection. The reporters' geography or the typographers need a little brushing up. Is Kennedy's land a new-found land, or an old forgotten quarter of the city? Further on the words "on the land," in relation to the previous place, means in the lane, we suppose. *Re* the instruction to the Law Agent, our model reporter reaches the acme of excellence in "compel the owner," and "also to compel the owner," the former dashing words in hot haste treading upon the heels of the latter. But enough, for mercy sake. Will our Medical Officers of Health instruct their "head disinfecter" and staff of assistants to begin their work immediately? An application of the liquid, the hot oven, and the flesh brush respectively to the persons of the official or non-official reporters might result in a considerable advantage for our unsanitary city and citizens.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary meeting was held on Monday evening,

Mr. CHARLES BARRY, President, in the chair.

The following were recommended for admission—As *Fellow*: William Henry Clarke; as *Associates*: Spencer William Grant and Walter Wheeler; as *Hon. Associates*: Sir F. P. Cunliffe Owen, C.B., Henry Stacey Marks, R.A., and Edward John Poynter, R.A.

Several donations to the library were announced, among others some valuable works presented by R. P. Spiers, Fellow.

The President announced that it had been the pleasure of H.R.H. the Grand Master of the Masonic body to appoint Br. John Gibson as Grand Superintendent of Works, in the room of Br. Frederick Pepys Cockerell, deceased.

A special meeting will be held on the 10th inst. for the following purposes:—To read the minutes of special meeting held on 18th March last; to announce the name of the gentlemen recommended by Council to receive the Royal Gold Medal; to announce the name of the Pugin Student, and the names of the successful candidates for the medals and prizes annually offered by the Institute; also, to receive the report of Council on the subjects for medals and prizes for session 1879-80.

## CITY HEALTH AND CITY LAW.

At the City Sessions Court, Green-street, on Thursday, the Recorder resumed the business left over from January.

During the calling of the petty jury list, Mr. Michael J. Ralph, T.C., applied to be exempted, on the ground that he was a member of the Public Health Committee, and that the death-rate of the city was a very urgent matter. If he were prevented from attending, the committee might not be able to get a quorum.

The Recorder inquired if the committee met to-day?

Mr. Ralph said there would be a meeting to-morrow. In the superior courts they were always exempted.

The Recorder—You don't mean to say the judges in the superior courts exempt every member of the committees of the Corporation from serving on a jury?

Mr. Ralph—Whenever they apply, they are exempted.

The Recorder said there were a number of statutable exemptions, and he would not lay down any rule for further exemptions. If the committee met to-day, however, he would exempt Mr. Ralph, but the committee did not meet until to-morrow, and if required to-day he could not be exempted.

## WHITEWASHING OF WORKSHOPS.

At the meeting of the United Trades Council in Liverpool the other day, a correspondence was read between the secretary and Mr. Alexander Redgrave, her Majesty's chief inspector of factories, in reference to some points in the new act. The secretary urged the necessity of having a register kept of the dates when the various workshops were whitewashed or painted, as there were many in Liverpool that had never been cleansed or limewashed for twelve or fifteen years, and some were hardly fit to put animals in. The inspector, in reply, said the subject would receive all the attention which its importance demanded; but he pointed out that the factory inspectors had no control whatever over workshops in which men only were employed, nor any control as to limewashing, &c., over any workshops in which neither children nor young persons were employed, nor in what were called "domestic workshops." The sanitary condition of these establishments would continue, as heretofore, under the supervision of the local authorities.

## WORKMEN'S CLUB.

THE committee of this club met at 41 York-street on Thursday evening. Mr. Thomas Davis presided. After the minutes had been read, the secretary intimated that a donation of valuable books had been made to the library by Charles Eason, Esq. On the motion of Mr. Doyle, seconded by Mr. Trevors, the best thanks of the committee were voted to Mr. Eason for his timely gift. It was resolved to convene a meeting of the vice-presidents and other friends of the movement on Wednesday, the 19th inst., to consider the advisability of roofing in the space at rear of house, and so making a lecture-hall, suitable for the wants of the members. The second course of lectures was announced to be delivered on Wednesday next, by Mr. T. W. Russell. Subject—"The Story of the Sunday-closing Bill: a Lesson on Constitutional Legislation." The balance-sheet for quarter ending 31st December was submitted by treasurer, adopted, and ordered to be posted in the reading-room. A valuable writing-desk and album, presented by the members of the club to Mr. Edward Murray on his appointment as agent of the Irish Association for the Prevention of Intemperance at Cork, was exhibited.

## TENDERS.

For the construction of storage and service reservoirs, laying pipes, &c., for Ennis Waterworks. Mr. Francis O'Connor, C.E. Quantities supplied by Mr. J. M'D. Bermingham, Dublin:—

Arterial Drainage Company	..	£9,581
J. E. Baroes, Strabane	..	8,614
J. Ryan and Son, Waterford	..	8,500
J. Long, Dublin	..	8,000
M. Walsh, Foynes	..	7,900
Sexton and Carroll, Ennis	..	7,800
J. McGuire, Lancaster	..	7,600
R. Simpson and Co., Dublin	..	7,430
J. Cunningham, Dalkey (accepted)	..	7,245

The tender of Mr. Thomas Spittle, of Newport, for the supply of pipes was accepted at £2,503.

**SMALL-POX IN LONDON.**—We learn from a contemporary that on last Saturday the number of small-pox patients in the Metropolitan Asylums Hospitals was larger than ever—353 as against 317 and 345 at the end of the two preceding weeks,—and although the number of new cases admitted was less than in the weeks ended the 8th and 15th inst., it is feared that the decline of the epidemic cannot yet be hoped for.



## CORRESPONDENCE.

## ENGLISH ARCHITECTS IN IRELAND.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—A friend has drawn my attention to an article in your issue of December 15, 1878, headed as above, which has excited not only my amusement, but also a certain amount of indignation from the cool and ludicrous effrontery of the statements made by a Mr. E. W. Godwin, in a lecture delivered in Manchester. This gentleman may be a picturesque or very pretty architect upon paper (though I shall have to dispute even this by-and-bye), but he certainly does not know how to build a dry and comfortable house fitted for modern requirements, as I shall proceed to show by reference to what he has hitherto done in Ireland, which will at the same time open the eyes of my readers to the reason of his having been betrayed into the *faux pas* of making that foolish statement that “damp could not be kept out of a house in Ireland,” and that Ireland was a “place to be avoided by the architect,” which looks very much like the fable of the “Fox and the Grapes.” Mr. Godwin’s family motto should be “*experientia docet*”; and I perfectly endorse his sentiment that Ireland is a place to be avoided by the architect who does not know what he is about; such an architect should always “refuse a commission for Ireland,” as Mr. Godwin says.

Why, sir, there are scores of houses in Ireland, built by English as well as Irish architects, quite as dry as any in England; and I happen to know one of the latter who is constantly building dry houses with walls only 2 ft. thick, while Mr. Godwin does not know how to build a dry house with walls from 3 to 6 ft. thick, lined moreover with brick. This speaks for itself, and is the consequence of an architect studying one department of his profession to the neglect of another. It is unfortunate that the lecturer should single out Dromore as one of his “important works” in Ireland, for, in his picturesque description of it, he tells his audience next to nothing about his mistakes which caused his “noble client” such an immense amount of trouble and anxiety, and which ended, I believe, in the necessity of re-roofing the whole building. He is obliged to confess one blunder, however, viz., that of building an arch which cannot be used, convenient as it may have been to “Chaucer” and his friends, and with which Lord Limerick must have been “extremely delighted,” as he says. Whether his lordship is equally delighted with the wet walls is not so certain. But roofing seems to be a point in which Mr. Godwin is especially weak, as the same catastrophe occurred, I am told, in another of Mr. Godwin’s successes in the south of Ireland, as in the case of Dromore, though in this case, I have been told, to his own loss. This house, like Dromore, had to be re-roofed, but it was done by an architect who understood his business, and the house has since been perfectly dry.

To show how impossible Mr. Godwin finds it to keep out damp in Ireland, he says: “Go into a house having a stone staircase and you could tell if it was going to rain, because the stones suddenly got darker in colour;” but it so happens that in this second failure of his in the south of Ireland there is a stone staircase, and though the house is situated in about the wettest part of Ireland, and exposed to the prevalent wet winds from the sea, it is exactly the same colour, and is as dry, in wet as in dry weather. When the wet was pouring into the roof of this house Mr. Godwin had it cemented, which made matters still worse; for on a roof liable, of course, to a certain sway under the pressure of a gale, the cement cracked, and the wet poured in more than ever!

But, sir, Mr. Godwin’s inability—confessed inability—to build dry houses is, if possible, exceeded by his deficiency in a department of his art, for which one might suppose his success on paper might have saved him, viz., that of picturesque design, involving the

aesthetics of art, delicacy of perception for composition, balance of parts, and arrangement of masses, and so forth. In the last instance I have named he erected a tower of such proportions as entirely to dwarf the house, and make the former look so like a large manufactory chimney (with the absurd intention of carrying out the idea of the Round Towers of Ireland, though this tower was square) that it had to be taken down. Then the windows are so small that the house looks like the keep of an old castle, and the discomfort of absence of light in the rooms is supplemented by little daps of glass of such “medieval and Chaucer-like” proportions as not only help to diminish light, but to have the additional qualification of being liable to be blown out of their little leaden frames by violent gales of wind.\*

Having done what I consider only justice to the fair fame of English architects in Ireland, and what is due to the credit of the profession, I remain, sir, yours, &c.,

FIAT JUSTITIA.

## OUR DEATH-RATE, AND ITS CAUSES.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—A correspondent of a daily paper writes:—“By the Sanitary Act the medical officers are paid and empowered to report all such cases as in their opinion require sanitary reform to the police authorities, who then institute prosecutions against the landlords of the premises on which the nuisances occur.” He then proceeds to bring a charge against the dispensary medical officers for neglect of duty. In this he is utterly wrong. The medical officers have no such powers under any act of Parliament. Their duties are fixed by order of the Local Government Board, and it is not part of their duty to act as “inspectors of nuisances.” They have only to report such matters as come under their notice in the discharge of their duties as dispensary medical officers (*i.e.* attending the sick poor), and such as their attention is called to. The duty of looking for nuisances belongs to the “inspectors of nuisances,” who are the employés of the Corporation, with the grandiloquent title of “sanitary sub-officers!” Sanitary defects are not reported by any medical officer or inspector to the “police authorities,” but to the sanitary authority, which in the case of Dublin is the Public Health Committee of the Dublin Corporation. The police authorities are not the persons who prosecute; this must be done by the officers of the Public Health Committee of the Corporation. The writer should have been more careful before he made such a sweeping charge against the dispensary medical officers of Dublin, who do a vast amount of good work for very low salaries. Some of the medical officers may not be as zealous as others. It may surprise some to hear that it is the duty of the sanitary authority (the Public Health Committee of the Dublin Corporation) to remove the refuse and take away the dirt which has been complained of, but this duty has been persistently neglected by that authority. In every English town of any consequence, the removal of all house refuse is undertaken by the sanitary authorities, who possess no more power to do so than the Dublin Corporation does in Dublin. HOSPITAL PHYSICIAN.

February 21st, 1879.

THE ROYAL DUBLIN SOCIETY  
AND THE  
SCIENCE AND ART DEPARTMENT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I think it is well that you should give publicity to every matter of interest in connection with the future of the Royal Dublin Society. You have on several occasions devoted considerable space to discussion of the merits of the Art and Science

\* Who could suppose that those grand old “composers in stone” of the 13th and 14th centuries would not have availed themselves of plate glass, if they could have got it, in preference to such glazing as this, much as it may suit Mr. Godwin’s mediævally glutted taste?

Museum scheme, both in connection with the Royal Irish Academy as well as the Dublin Society. Your fears, I must confess now, were well grounded, and it would have been lucky had your misgivings been more carefully considered at the time. Some matters are beginning to leak out, and I understand that the South Kensington coterie are only carrying out by degrees a pre-determined upon plan. Let not people be surprised one of those days at hearing that the late Registrar and present Director at Leinster House will be quietly allowed, when matters are ripe, to retire on a pension—that he will, in fact, be shelved to make room for a brand-new original, whose appointment will meet the concurrence of “Mo Lords.” After this will naturally follow a few of Sandy’s poor relations over the Borders, and some South Kensington expectants in addition, who are hungering these many months for place and pay. Only wait, sir, till the new buildings are in process of completion and you will be delighted with the new staff of the Dublin branch of the South Kensington Science and Art Department. After a short time, I opine, it will be as difficult to find a retainer of the old Dublin Society in the halls of Leinster House as a living representative of that magnificent skeleton of the fossil deer that has for long years graced the hall of our Dublin Museum. Centralisation moves apace, but who are to blame that the locusts are increasing in number? The Royal Dublin Society has been betrayed from within as well as from without, and the sequel is so obvious to all intelligent observers that it need not be described by me. H. C.

London, Feb. 26, 1879.

N. B.—When I return to Dublin I may address you another missive.

## GAS ILLUMINATION.\*

It is impossible to discuss the subject of gas illumination at the present time without referring to the electric light, which many authorities affirm is destined to be the light of the future. If this is so, it might naturally be inferred, by those who have only a slight knowledge of the subject, that it is only wasting energy to devote time and study to the improvement of gas lighting, since it must soon be superseded by the more brilliant light obtained from electricity. I have given this matter some attention, and I must say that I have no fear that gas interests will suffer in consequence of the introduction of the electric light for many, many years, if at all. The mere fact that light can be obtained by passing a powerful current of voltaic electricity between carbon points dates back to a time when gas lighting itself was only in its infancy; and it is now nearly 30 years since the apparatus was so far perfected that the distance between the carbon points was worked automatically; and the improvements recently introduced, if we except the Jablochkoff candle, and the imperfect arc formed in the Werderman arrangement, have been directed more to the effective production of electricity by mechanical power than to the light itself. Turning over an old periodical a few days since, I came upon a paragraph which I read with some interest, in which it is stated that a French *savant* had discovered a plan by which the unsteadiness of the electric light was removed. The date of this announcement is 1853—a quarter of a century since—and even now we are scarcely in a position to say that the unsteadiness of the light has been overcome. The fact is, that we have still a long period of experiment and study before us in regard to lighting by electricity, and although the march of improvement in science is now extremely rapid, I scarcely hope to live long enough to see electricity take the place of gas in the lighting of ordinary dwelling-houses. But even if I am in error in supposing that the enormous diffi-

\* By Dr. William Wallace, F.R.S.E. Read at Society of Arts, January 30th.



culties will not immediately be overcome, there is still little, if any, cause for alarm on the part of holders of gas stocks, since even at the worst gas is certain to be used side by side with electricity as long as coal can be got to produce it. The fears entertained recently by shareholders of gas companies remind me of the beginning of railway engineering, when it was asserted that if railways were allowed to be made there would no longer be any use for horses, and the valuable breeds of the animal in this country would be allowed to die out. We all know that the result was entirely the other way; the railways increased the demand for horses, and they became more valuable and more numerous than ever. Then, again, it was supposed that when gas was used for the lighting of towns the manufacture of candles would cease, but what is the fact? more candles are made now than ever there were before, and, what is very much to the purpose in connection with my subject to-night, the greatest improvements in the manufacture of candles were made after the gas manufacture was fairly established. Even within my own recollection candles were burned which required constant snuffing, and so late as 30 years ago artistic designs for snuffers and snuffer-trays were published in art journals. If electricity supplants gas for public lighting, as I believe it may to some extent, it is all the more necessary that we should strive to get more light out of gas, either by improvements in the mode of manufacture, or by better means of burning it, or both, and I am very sanguine that gas lighting during the next 30 years will be developed to an extent of which we can at present form no adequate idea. We have seen some improvements in gas lighting already. What was at one time 12-candle gas, tested by the primitive Argand, became 14-candle gas with the Sugg-Letheby burner, and 16-candle gas with Sugg's London Argand; and all this without sensibly changing the quality of the gas, and, consequently, without conferring any benefit on the public. A real and substantial improvement in gas lighting would be one which would enable the public to get, in ordinary domestic life, something approaching to the illuminating power declared as the result of the official tests, and the object of this paper is to show what has been done up to the present time in this direction. Before passing on to my subject, however, I wish to make just one remark. If the production of gas is sensibly decreased, the value of the by-products will proportionately rise, the demand for benzole, anthracen, tar oils, pitch, and ammonia will continue; and, if the quantity produced becomes less, the value of these important articles will undoubtedly increase.

Coal gas is a cheap source of light, the only real competitor in this respect being paraffin oil. The following table gives the comparative values, based on what may be accepted as average prices, although some of them may not be exactly correct at the present time:—

Cannel gas, 30 candles, at	4s. 2d. per 1,000 c. ft.	1
Common gas, 16 candles	3s.	1½
Paraffin oil .. ..	1s. 6d. per gallon ..	1½
Colza oil in moderator		
lamps .. ..	4s. 6d. ..	7
Stearine candles .. ..	10d. per pound ..	27
Tallow .. ..	8d. ..	29
Paraffin .. ..	1s. 6d. ..	31
Sp-rm .. ..	1s. 6d. ..	36
Wax .. ..	2s. 6d. ..	72

In these comparisons, it is but fair to say, the gas is calculated as giving the light obtained when burned in the best known manner, as in the official tests of the gas examiners of the towns where the respective qualities of gas are made.

It will be well to indicate, in a few words, the principle involved in the testing of various gas flames and other sources of light. If a flame of any kind is held at any distance, say a yard from a screen, in which an opening is made 1 ft. square, and a second screen is placed at the distance of two yards, there will be thrown upon the latter a square figure, which on examination will be found to

measure exactly 2 ft., and which has therefore an area of 4 square feet. If the second screen is moved to 3 yards, the illuminated portion will measure 3 ft. square, representing an area of 9 square feet; at 4 yards it will measure 4 ft., giving an area of 16 square feet. We thus see that the space covered by the light increases in proportion to the square of the distance, while the intensity of light decreases in a corresponding degree. To put the matter more clearly to those who have not studied the subject—a flame at a given distance, say a yard, illuminates a given space, say a foot square, but at four times the distance the illuminating effect is diffused over sixteen times the area, or 16 square feet, consequently any single square foot at this distance gets only one-sixteenth part of the whole quantity.

I do not propose to enter into any details regarding photometers, all of which are based upon this principle, but I may explain the mode of testing by a simple illustration. I have a space of 100 inches, with a candle at one end, and a gas flame which I wish to test at the other. I have a greased disc moving freely between the two, and by a little practice I can place it in a position in which the two sides are equally illuminated. I now measure the distance between the candle and the disc, and find it to be 20 in., while that between the gas flame and the disc is 80 in.; the square of 20 is 400, and of 80 6,400, and the one divided by the other gives 16 candles as the illuminating power of the gas flame. In practice the photometer is divided so as to give the illuminating power by direct observation, and many details require to be minutely attended to in order to obtain reliable results.

We are in the habit of talking of certain qualities of gas—16 candles in London, 15 in Birmingham, 14 in Newcastle, 26 in Glasgow, 30 in Edinburgh, but these are not the values of the gas as burned in our houses, warehouses, and shops, but as burned in the manner calculated to give the highest illuminating power. These figures show the possibility of gas illumination, and represent the goal towards which we should strive. I freely admit that it is impracticable, not to say impossible, to obtain in the every-day practice of common life results as good as those got by means of appliances the most perfect for developing the full photogenic value of the gas, but still a great deal may be done to decrease the reckless waste of light that is constantly going on. I have no hesitation in saying that from 12 to 14 candle power might be obtained in every-day life from what is called 16-candle gas. We stand in a similar position with regard to various forces employed for practical purposes. The engineer calculates the power that should be obtained by the falling of a given weight of water through a given space, but the practical result obtained in a water-wheel always falls far short of the theoretical quantity. In like manner, the force obtained by the combustion of one pound of coal in the boiler of a steam-engine is greatly less than the calculated figure. Still, mechanicians struggle on to obtain better results, and we are constantly improving. Some of the most recent forms of reaction engines show an immense improvement on the water wheels formerly in use, while, in regard to steam power, we have, in the performance of the best descriptions of compound engines, an approach to theory which was formerly deemed impossible of attainment. Such improvements represent so much money saved to the country; and it is equally the case with gas, but with this addition, that a decreased consumption, with the same amount of light, would give increased healthfulness to our dwellings, where the products of the combustion of gas constitute an evil of no small magnitude. It has been said that the man who causes two blades of grass to grow where only one grew before is a benefactor to his country, and some honour is due also to him who enables us, by improvements in the steam-engine, to get out of one pound of coal the power which

formerly required the combustion of two pounds, or who teaches us how to obtain from one cubic foot of gas the illuminating value for which two feet had previously been expended.

(To be continued.)

## TWO MORE DUBLIN CHARACTERS OF THE NINETEENTH CENTURY.

IN our volume for 1874 appeared an article on "Two Dublin Characters of the Nineteenth Century," in the persons of the Brothers M'Anaspie, one of whom was still living at that time, but now lately deceased. The M'Anapies, however, despite the vagaries that characterised their career, were practical men in their line of business, and possessed artistic skill. A notice of their lives and habits was not out of place in this journal; but of the two characters we are now about noticing, they are further removed from the field of our advocacy, and their oddities and peculiarities alone can claim little more than a passing notice in these pages. The death within the last few days has been chronicled of Pascal Paoli Law and "Paganini" Lindsay, the youngest son of a late well-known bishop of that name. The former eccentric worthy, Law, who formerly carried on business as a cabinetmaker, led for several years back the life of a miser in the house known as 51 Lower Dominick-street—a house which through neglect became as dilapidated as the sole inmate himself, who almost secluded himself from mortal eyes. The unfortunate man was taken in a dying state to Eden-quay, and the following facts came out at the inquest:—

"Deceased was the reputed owner of an immense sum of money, was of very eccentric habits, and lived in an exceedingly penurious manner. There were over twenty relatives, or professional representatives of relatives, present in court. Dr. G. W. Wise deposed that when witness saw deceased on Sunday he was lying undressed on his bed. He was in a very filthy and neglected condition. Witness saw no domestic about the house, nor did any means appear of providing him with any comforts such as he would require. There were no ordinary necessities of life about him. Deceased must have been several weeks in the state witness saw him. To a Juror—There was no fire in the room, nor did I see any fire-grate in it. The paper was hanging off the walls from the dampness of the apartment. Deceased unquestionably suffered from want of food, and this hastened his death. He was able to speak, but not in a coherent way. Mr. W. Watson, Lower Sackville-street, deposed that deceased had often told witness that he had no near relatives, and said, 'I am the last of the Laws.' Deceased had often spoken of the settlement of his affairs, but he always spoke of this as something not yet done. On one occasion deceased was talking about those who had died intestate, and witness said to him that he ought to make some settlement of his affairs. 'Why?' said the deceased. 'Because if you make no will, the lawyers will make away with a great deal of your money.' 'What's that to you?' said deceased. 'Nothing in the world,' replied witness. 'Then,' said deceased, 'if a man is not hungry he cannot eat.' Witness never introduced the subject of the settlement of his affairs. In reply to a juror, he said he had visited the house, and there was not a spot on the floors but was covered with odds and ends of all descriptions. It was not a place for a dog to live in. Every inch of the stairs was covered with bits of old pots and crockery. When he went into the bedroom of deceased he looked about for the bed. That which deceased used was quite unlike one. Mr. Watson said that he thought it necessary to state what property deceased had when taken to 1 Eden-quay. He had a £20 note; a deposit receipt on the Munster Bank for £150; a deposit receipt on the Bank of Ireland for £200; and a receipt that he had paid £800 to the Stewart Institute for Imbeciles. The jury found that deceased died of bronchitis. In conclusion, the coroner said that one reason for having the inquest was that some persons had questioned Mr. Watson's and Mr. Hopkins' right to remove Mr. Law from Dominick-street, as they were not relatives. It was clear that they had acted only from humane motives."

Mr. William Acheson, writing to one of the daily papers, says in respect to the deceased gentleman:—His name was Pascal,



and not "Patrick" Law, and he never was a partner in my uncle's jewellery establishment. No doubt he was most peculiar, and lived a life of solitude; but, though denying himself, he has been most generous to some of his acquaintances, and lately gave a very large sum—I believe £5,000—to one of our charitable institutions." Deceased was unmarried, and reported to be about 84 years of age, and lived on the interest of funded and other property.

Our second Dublin Character was a rather remarkable figure. He was well known in city, monetary, and musical circles, and from his fondness for his fiddle and his supposed resemblance to the great violin performer, was dubbed "Paganini" Lindsay. The deceased had always the habit, acquired or arising through some defect, of keeping his head inclined or drooped over his left shoulder, exhibiting the usual posture of the operator on the fiddle. Some years ago Mr. Lindsay figured in a trial for breach of promise, and the evidence on that occasion went to show that he dabbled not a little in bill-discounting, &c. If report is to be credited, he has died immensely rich, his cash assets alone being stated to amount to £60,000. The bulk of "Paganini's" property is likely to revert to Colonel Lindsay, his nephew.

In the case of Mr. Law a large number of persons claiming kinship have turned up. It is wonderful what a number of strange folk turn up at the death of a rich person, or one reputedly wealthy. Kith and kin that seldom or ever put in an appearance previously, and which in the case of a "hard-up" living relative are rarely found anxious to own kinship or render assistance in the direst need. Such is the world, and such and similar characters to those we are noticing would seem to be specially intended for the tender operations of the lawyers, who fry them after death in their own fat, affording thus a warning for other times and people to profit by; but, alas! the stupidity and perversity of man will be proverbial to the end of the chapter.

#### EXPERIMENTS WITH THE ELECTRIC LIGHT.

EXPERIMENTS have lately been in progress with a view to effecting no less important a change in the internal arrangements of the British Museum than the lighting of the reading-room by means of the electric light. Accordingly, a considerable number of fortunate possessors of invitation cards assembled on Tuesday evening to witness the effect of the new light in the room which they have hitherto only had an opportunity of seeing during the daylight. In the hall through which the scene of the experiments is reached the feeble light of a few lamps and lanterns placed here and there, but wholly insufficient to dispel the sombre aspect of the vast interior, must have forcibly reminded visitors arriving at the unwonted hour of dusk that some practical value is still attached in some cases to the objections which were originally made to the use of coal gas as a means of illumination. The trustees of a great national collection like the British Museum may be credited with a more rational feeling than that of mere alarmist prejudice in setting their faces against the laying down of long pipes of "explosive gas" under their feet. The enormous value, in fact, of the collection and the impossibility of its ever being replaced if the building in which it lies treasured up should ever happen to be burnt down, has prevented the adoption of gas-lighting, with its attendant dangers, within the walls of the British Museum. The public have perforce been excluded from that establishment during the hours of darkness; but that this need not be any longer the case was apparently demonstrated with complete success on Tuesday evening. Above every second partition dividing the line of desks and at the ends nearest to the central tables from which they go off at a tangent, a globe enclosing an electric flame had been affixed at a height of 15 ft. At a given

signal the semi-darkness of the reading-room was suddenly changed for light, the brilliancy of which could hardly be surpassed in the best constructed apartment in broad daylight. As they stand at, present, however, the lamps are not as numerous as they will be when the arrangements now being made are complete, for the number of desks being nineteen, and the lamps being distributed as far as they would go round in proportion of one to every two, it follows that the eight lights are not quite sufficient; added to which it is intended to place an extra one immediately in the centre of the room. It is even proposed to fit up one lamp on each line of desks, or, in all, double the number at first contemplated, owing to the fact that at present a tolerably dark shadow is thrown by the partition affixed to the desks, a difficulty which is somewhat complicated, when use is made of the little book-rest which the reader may draw out in front of him. Whether so great a flood of light will be introduced, however, or whether some modification will be made in the reading-desks, is not as yet determined. In any case, the lighting, even in its present half-finished condition, lends a remarkably fine effect to the great apartment, with its tall, long shelves of books, whilst the smallest of ordinary print may be read with ease with its aid by anyone with tolerably good eyesight. The eight lights are enclosed within milk-white opaque globes, which consume part of the brilliancy of the flame, but are necessary for protecting the eyes of readers. They are estimated to be equal to 4,800 candles in the aggregate, or 600 caudles each, and are fed by a Jab-lochhoff "candle," 9 in. long, burning for the space of an hour and a-half. It may be mentioned that these candles are of an improved form recently introduced by M. Berly, of the Société Générale d'Electricité, who have charge of the present experiments. Their advantage as compared with the older style consists in their being adapted for being turned out and relighted one by one at will. The wires along which the electric current is conducted pass under the floor of the reading-room and under the ground, a distance of 650 ft., to an outhouse specially constructed for the fitting-up of the engine supplying the necessary motive power. The engine employed is nominally of 16-h. p., and works a double "Gramme" machine, generating the electric current by induction. The outhouse, which is opposite the north-western angle of the Museum, is quite disconnected from the main building, and thus no danger of fire to the latter is to be apprehended from stray sparks from the furnace.

#### WATER-COLOUR PAINTING.\*

I PROPOSE to address the few remarks I have to offer to-day to one special branch of painting which is sometimes, I think, put too much into the second rank, and of which I see some pleasing examples on your walls. I allude to water-colour painting. Water-colour painting is an art which has such special charms of its own that it cannot fail to come home to the artist, as well as to the amateur, as being in many cases the medium by which the painter is enabled to catch the fleeting phases of nature on the spot, even when the results of study in the open air are to be fixed on the canvas in oil, that I am induced to think that a few words upon that special branch may not be out of place. No one who makes any study of the state of art in the present day can fail to be struck with the great proficiency obtained in water-colours when we look back to the works of various artists, and, certainly not least amongst these, our own countryman and distinguished member of the Royal Hibernian Academy, the director of the National Gallery in London, Mr. Frederick William Burton. I saw a portrait of a lady by Mr. Burton in Grosvenor Gallery last year in

water-colours, of such power and brilliancy of colour that I was at first completely deceived, and thought it was painted in oils. Sir Coutts Lindsay—no mean artist himself—has done great things in building that temple of art,\* and one result of his munificence is the bringing more prominently into notice a school of painters, both in oil and water-colours, but little known to the general public, though they were duly looked up to by those who have been admitted to their studios. Mr. Barne Jones, Mr. Rossetti, Mr. Spencer Stanhope, who never exhibit at Burlington House, take up a line entirely their own, and although their works are of peculiar types, and may not please every eye, still they form a school whose aim is the highest, and which cannot fail to command admiration in the most educated of art criticism. I think there is little doubt, whatever may be said of oil painting, that at no period has water-colour painting attained to the perfection of the present day. I wish to address more particularly the students in water-colour on this occasion, because I see here year after year works in water-colour showing considerable capabilities, and I hope that those who attain proficiency in this branch of art will adhere to that method, and not think that they must necessarily succeed in one method because they have done well in the other. Do not let anyone look upon water-colour painting as an inferior branch of art, for they may depend upon it that the standard is high enough, and the works of the best class. The water-colour painter has fame and fortune within his reach in that line as in any other. I knew a lady who received a thousand guineas for a work in water-colours not more than five or six years ago. The greatest landscape painter that England ever produced, Turner, was only really a water-colour painter, and he revolutionised the art by his discoveries. Many of his pictures which are in the National Gallery in London, though painted in oils, were designed and carried out more according to the system of water-colour painting than that of oils, and he unveiled methods of painting and of producing the wonderful effects seen in his works, which were based upon his knowledge of water-colour painting. But in this line, as in every other, there is only one road to success, and that is, never to be satisfied with anything second-rate, or to put too much confidence in your own performances. Never consider yourself good enough, for directly you are satisfied with your own work, and begin to think that you have attained perfection, from that moment your failure begins. Do not be too much inclined, if your pictures do not tell, to put the blame on the public, for works of real merit never fail to command the appreciation of the connoisseur, and the only way is to try again and endeavour to reach a higher standard by further study, as the fault is more probably in your own work than in the judgment of the purchasers of the pictures. There is no greater mistake than that which I have often heard, namely, that there are no buyers, and that there is no taste for art in the country. The public will not buy pictures that do not please them, and you may depend upon it that if good pictures are exhibited, the artist will soon become known, and plenty of people be found ready enough to purchase his works. There is no doubt that it is only by truth in drawing and perspective, and correctness of form and colour and painstaking in execution, that the artist can hope to rise to that high rank in art which is so very limited and rare, and which will only be attained by those who will not be prone to listen to the voice of flattery, nor rest upon any laurels they may have gained, but will continue a lifelong study, not only of nature, but of the works of the well-recognised masters who have preceded them, and will go on from strength to strength, and by higher and bolder flights in the true and faithful practices of their art.

\* From address delivered by Lord Powerscourt at the annual drawing of the Art Union of Ireland on the 25th ult.

\* The Grosvenor Gallery, London.



## HELP FOR AUTHORS.

THROUGHOUT the eighteenth century many of the works published had eccentric and alliterative titles, some were very long, and rarely were they very short. This last half of the nineteenth century is signalised by a host of strange titles, the authors in the majority of instances aiming at catching titles, or what they suppose is such. Here, then, are a few for a beginning, professional and general:—"The Art of Scamping;" "Craft and Handicraft;" "Brain Picking and Brain Pickers;" "Art and Artifice;" "Rats and Ratcatchers;" "Mothers and Midwives;" "House Draughts and Doctors' Draughts;" "Health and Housekeeping;" "Architects and Undertakers;" "Dirty Dublin Delineated;" "Medical Officers of Health and Municipal Martinets;" "The Liffey and the Liberties;" "Civic Shams and City Slums;" &c. Any hard-up author torturing his brain for a title for a new work will be supplied with an original title for his laboured volume, and matter also to keep it from coming still-born from the Press, by applying to

ANGELO VIGNOLA M'CABE.  
Mullinahack, Dublin. (Philomath.)

## NOTES OF WORKS.

New offices and dwelling for the Munster Bank at Baltinglass, County Wicklow, are about to be erected, from the plans of Messrs. Henry and Arthur Hill, architects, of Cork.

Bank premises were lately built at Kilmallock, for the same bank, in the style of the ancient domestic architecture of the town.

A parochial hall for the parish of St. George has been erected at George's-place, in close proximity to the church. It is of red brick, with bands and quoins of granite. The principal apartment, on upper floor, measures 75 ft. by 35 ft. The lower floor is divided into two rooms, which will be used for various parochial purposes. Mr. George Tyrrell was the builder.

ATHY  
GUARDIANS AND COMMISSIONERS  
AND THE SANITARY ACT.

THE following is a portion of the report of the proceedings at meeting of the Athy Board of Guardians last week, as given by the *Leinster Express*:-

Chairman—While the sub-sanitary officer is here, I would like to ask him what is the sanitary state of Athy at present? for I see by a report of a meeting in connection with the Boundary Commission held in the town-hall on Thursday last, that we are accused of neglecting the carrying out of the Sanitary Act.

Sub-sanitary officer—When the guardians took up the carrying out of the act there were not more than half a dozen latrines to the smaller houses in the town; now there are very few houses unprovided with them. I had fifteen persons prosecuted, representing over 100 houses; and although I brought the cases under a special clause in the Public Health Act, which enabled the magistrates to impose penalties, they would not do so. The petty sessions clerk having refused to supply the proper notices, the consequence is that nothing has been done in these cases.

Mr. O'Beirne—I think there is some partiality on the part of the magistrates. It appears to me not to be the fault of the sanitary authority at all.

Mr. Clandillon—There is not a doubt about it; for not until Mr. Hamilton came from Maryborough nothing could be done at all. I met with the greatest opposition from the magistrates and the town commissioners in my endeavours to carry out the act. They met me on every point they could, and employed an attorney to oppose and thwart me. That opposition came from the principal members of the town commissioners.

Mr. O'Beirne—I hope that statement will go before the public.

Chairman—I was certainly astonished when I read the statements made at the meeting in Athy, for it is a well-known fact that when the town

commissioners had the carrying out of the sanitary act they left the town in a sink of filth!!

Mr. Clandillon—The town commissioners gave me every opposition in their power. They were the principal opponents I had in my endeavours to carry out the act.

Mr. Clandillon was proceeding to name certain members of the town commissioners, whom he stated were owners of a large number of small houses, and from whom he met with considerable opposition—

Chairman—We do not want to hear any names.

Mr. Clandillon—Then I would wish the board to make an order on the petty sessions clerk to supply me with the proper notices that he is obliged to do under the statute.

The discussion then concluded.

## HOME AND FOREIGN NOTES.

IRISH DRAMATIC LITERATURE.—"Brian Boru: a Tragedy," by J. T. B., who is an architect, is spoken of very favourably by portion of the London Press. The scene of the drama, as most of our readers may guess, is laid in Ire and at the commencement of the eleventh century. Several of the passages exhibit good and effective writing. The tragedy should meet with favour in this city, as well as in the cities of the south, as Clontarf, the scene of the decisive battle which crushed Danish sway in Ireland, is a seaside suburb of the city, and a health and holiday resort known to old and young.

WREXHAM MARKETS.—We understand that Messrs. Salmon, Barnes, & Co., of Ulverston, are fitting up these Markets with their Patent Revolving Shutters. This system of enclosing the shops and stalls with shutters is becoming very general, as stalls protected in this way are found to let at much higher rates than open stalls. This will be readily understood, as the shutters afford the best protection to the goods exposed, and we think that the universal adoption of revolving shutters for libraries, both in public and private houses, would prove equally advantageous for the same reason.

THE TRANSMISSION OF CIRCULARS BY POST.—The Postmaster-General has issued the following notice:—It having been decided by the law officers of the Crown that circular letters are not entitled to be transmitted through the post at the book rate of postage unless they are (wholly or in great part) printed with ordinary type as in a book, or engraved or lithographed; circular letters copied by any other process cannot for the future be regarded as printed circulars. This decision will take effect on and after the 1st of May next. Any documents which are not of the nature of letters at all—by what ever process they may be copied—will be transmissible at the book rate.

CLARE CASTLE PIER AND HARBOUR.—In the House of Commons on the 20th ult., Mr. Stackpoole, the member for Ennis, asked the Secretary of the Treasury whether his department will recommend the Commissioners of Public Works in Ireland to advance, on the security of the dues received by that body from the local authorities of the Clare Castle Pier and Harbour, County Clare, since 1843-4, the sum reported by the Board of Works' engineer to be necessary for improving the pier and harbour, so that the existing obstruction to the harbour may be minimised, if not altogether removed. In reply, Sir Selwin Ibbetson said on the subject:—I understand from the chairman of the Board of Works in Ireland it is not likely to be so unless a satisfactory answer is given to the inquiries which were made in the letter addressed to the hon. member by that board on the 15th November last. Should the Board of Works recommend a loan such as that mentioned by the hon. member, the matter will receive the best attention of the Treasury. I think, however, he will see it would be quite inconsistent with the position of the Treasury to take the initiative in making a loan without first being consulted by the local authorities.

SOUTH CITY MARKETS.—In the fourth report of the Dublin (South) City Markets Company, the directors announce that since the last half-yearly meeting many of the claims of the owners and occupiers in the first section (the site of the market buildings), have been settled on the terms of the arbitrator's final award. By the settlement of these claims the company has now become the ground landlord of the entire of the central block. The directors regret to say that, owing to ill health, Mr. Fishbourne has been obliged to resign his post as arbitrator, which has caused some delay. The directors hoped before now to have had a contractor at work on the market buildings, but the necessity for a very careful consideration of all the details of a work of so much magnitude and variety, made

the preparation of the working drawings and specification, and the calculation of the quantities by the builders' surveyor a much slower process than had been anticipated. The "bills of quantities" have been prepared, and are now being issued to the parties who propose to tender. Judging by the number and character of the parties who have sent in proposals to tender for the works, the competition is likely to be keen. Although unexpected delay has arisen with this part of the work, the directors believe that owing to the constant fall in the price of building materials of all kinds during the past two years, the delay has been an advantage to the company. The present very low range of prices makes this a peculiarly favourable time for placing a contract for such a work. Acting on the best legal advice, the board has introduced a bill into Parliament for this session to extend the time for the compulsory purchase of a portion of the lands and for the construction of works, and to amend the borrowing powers; also to extend the powers of the company to purchase land for the purpose of improving the approaches to the market, to obtain power to raise additional capital, if found necessary hereafter, and for other purposes.

## TO CORRESPONDENTS.

FIAT JUSTITIA.—The gentleman who writes over above signature, and whose letter we print in this issue, speaks, we believe, from a personal knowledge of the architect's works in Ireland. Silence is sometimes golden; but some artists will act their own critics, and thus challenge the criticism of others. Perhaps the subject of the letter will not evidence any thinness of skin, considering the thickness of his modesty, as illustrated in his Manchester lecture.

"DANGERS TO HEALTH."—Some further remarks suggested by a perusal of Mr. Teale's book, briefly noticed in our last issue, are held over.

POSTAL IRREGULARITIES.—We have again to complain of the delay of correspondence connected with this journal by the Dublin Post Office authorities. Repeatedly packets that should be delivered in the morning are not delivered until evening, and sometimes not at all. Why documents intended for the IRISH BUILDER should be delayed, "Grahamised," or "burked," we would like to know. This is a professional and not a political journal, and there is no "head centre" conspirator in connection with its conduct. We will be forced to bring the grievance complained of before Parliament through some independent member, so that the public may be informed, and be enabled to draw conclusions respecting the rule, management, and spirit of the Irish Postal Department.

SANITAS.—Sanitary improvement is only a secondary consideration with the parties named. In inception, and in root and branch, the project is a commercial and not a philanthropic one.

H. C.—Thanks. The list can be easily obtained.

R. A.—The subject is rather stale now, but we will see what can be done, and done usefully, in the matter.

ARCHITECT.—The papers, or a portion of them, will be reproduced.

RECEIVED.—J. M.—LL.D.—A Workman.—T. B. (Belfast)—C. C.—R. D. S.—A Citizen.—M.D. (would be acceptable, if not too lengthy).—B.A.—Workman's Club.—T.C.—E. F., &c.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Advertisement accounts furnished quarterly, when prompt payment is expected.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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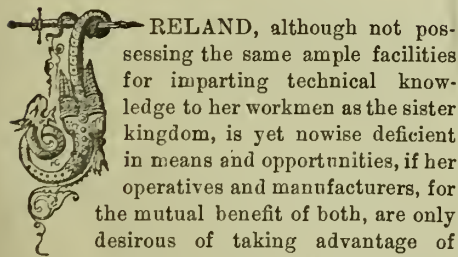
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THE IRISH BUILDER.

VOL. XXI.—No. 462.

NEGLECTED FACILITIES IN INDUSTRIAL EDUCATION.



IRELAND, although not possessing the same ample facilities for imparting technical knowledge to her workmen as the sister kingdom, is yet nowise deficient in means and opportunities, if her operatives and manufacturers, for the mutual benefit of both, are only desirous of taking advantage of them. We have already on various occasions advocated the cause of technical education, wisely directed, as also traced its uprise and growth in these islands. Trades as well as professions, more particularly in late years, have developed a system of political interests, and their leaders have closely watched the course of legislation, and have successfully, at least in the sister kingdom, influenced the bearing, scope, and administration of sundry acts of Parliament. Although we seldom discuss directly political questions, save where they have an important bearing on matters in the fields of our advocacy, we are nowise desirous of preventing workmen taking a public interest in questions affecting their political rights. At the same time we hold there are more important interests in view of the future for workmen to consider than mere politics, and especially party politics—the most disappointing and barren pursuit that any number of honest workmen can commit themselves to.

Trade organisations could have a large and salutary influence in the interests of their own order, if more wisely managed; but in this country, as at present conducted, they are almost powerless to effect any substantial

good for the elevation of their trades or the members thereof. At one time we behold them, under the most specious pretexts, taken hold of by political experts for party purposes, and at other times by ecclesiastical gentlemen with questionable motives and views. When both parties have achieved their purpose, and ridden their hobbies to their own satisfaction, and when the political and religious Shibboleth of the hour is laid to rest, the workmen are generally forgotten. These pranks have been so often played of late years in this country as well as other portions of the British Islands, that we often wonder at the credulity of men, and are tempted to say—“Working men, credulity is thy heirloom!”

Our purpose at present in drawing attention to these phases of modern action and thought is to see if we can attract working men, skilled and unskilled, to stop for a moment and to consider their position and their wants, and, if unable to lay down a better plan for their future guidance, to at least listen to a little honest and sincere advice from friends who have their true interests at heart. It is an old and often quoted maxim that “Knowledge is Power,” and no one can gainsay its truth; but the knowledge that is needed is not mere book knowledge, but industrial knowledge wisely directed. England has more than once sent deputations of its skilled workmen to Continental exhibitions, and recently Ireland has joined issue, the objects in view being similar. We supported that object with voice and pen, for we knew if the selections were good, the representatives of their respective crafts would individually improve themselves by careful observation, and their reports, if honest, would benefit the cause of their fellow-workmen. Why does not the thought occur to many that, while we are always looking abroad, we may be unwisely overlooking at home advantages within our workmen’s reach—facilities well calculated, if availed of, to benefit the workman individually or collectively, and through them the manufacturers or large employers of labour?

The members of archæological and architectural associations in the sister kingdom, and several kindred associations and clubs founded for scientific and art pursuits, have their annual excursions. Many minor societies, too, have been formed for the study of such subjects as natural history, and the resulting labours, apart from the benefits of expanding the knowledge of the members, singly and conjointly, have the effect of adding yearly to the stock of general knowledge in various fields of scientific research. If a number of archæologists or antiquaries visit an old abbey or castle to take notes and discuss the *pros* and *cons* of its past history, or if a similar body of architects proceed with their sketch-books to view and measure a mediæval cathedral of importance, or to inspect a notable public edifice erected or in course of erection by one of their profession—why cannot skilled workmen, particularly in the building trades, essay to perform similar labour? This would be labour that would bring its own reward, for, whether the craftsman could sketch as an artist or not, he could observe and examine with the eye of a workman, and perhaps take as much in as would inspire him to renew his visit and redouble his industry in his own particular craft. Although it is not necessary for all workmen to be artists, it is becoming indispensable for all workmen, particularly those

of the building trades, to know how to draw, to lay down a plan, or to copy one correctly.

Apart from the above-indicated pursuits, there are other important opens and facilities in our midst for the general class of workmen to avail themselves of with advantage to themselves and their employers. Without going outside any large city or its immediate environs, various are the factories, foundries, large workshops, &c., and, with the concurrence of the large employers of labour, reciprocal visits may be made, a number of workmen engaged in one great industry visiting the departments of another. There is scarcely an intelligent member of any branch of the building trade but would take an interest in visiting another branch outside his own trade, and examining the methods and processes adopted in its conduct. Masons, carpenters, and bricklayers would certainly take an interest in witnessing and examining and in hearing explained methods and processes connected with iron and brass founding, smelting, quarrying, stone-polishing, brick-making, terra-cotta manufacture, and the production of other building materials. The workmen engaged in the above branches would also, we have no doubt, feel much interested and enlightened by being allowed facilities for seeing joinery processes and other processes in connection with architecture both in the workshop and in the building in course of erection. The house-painter or paper-hanger could have his views of his art much enlarged by a visit to some large wall-paper and oilcloth manufactories where the various processes connected with these trades and the preparations of the materials used would be explained to him by a foreman or brother workman.

We do not hesitate to say that in most of our branches of trade, if an earnest and energetic attempt was made by a number of employers and workmen, there might shortly be established an efficient system of industrial reciprocal instruction, calculated to confer in a few years an important benefit on the trades and manufactures of this country. These home-trade visits and inspections would soon incite a spirit of study and enterprise, and our chief cities and towns would be soon able to produce foremen and workmen capable of lecturing when needed, or drawing up reports on their respective trades, and making suggestions for improvements in other industries besides their own. A trade society ought to be something more than a mere house of call, or a place of weekly meeting for handing in a few small subscriptions for membership, and for otherwise “pitching-in antagonistically” to hard-fisted employers, backsliding members and “black sheep.” Why should there not be a weekly or fortnightly meeting in trades societies for the mutual instruction of the young members in matters appertaining to the pursuits of their handicraft? Why should there not be drawing classes and other classes? Every trade hall or place of meeting should be more or less a sort of mechanics’ institute, where something useful might be learned to supplement or assist a young workman, and render his instruction more easy at schools of art. We fear our young Dublin workmen patronise to a very small extent schools of art, and that the major part of their spare time is spent in amusement. Recreation is as necessary as work, and we are not among those who would debar hard-working men from having their amusements or any necessary refreshments their bodily wants might



requiro. Unfortunately too many of our artisans in cities and towns debase themselves by a fatal indulgence in strong drinks, and where this habit exists—and it exists to a large extent—instruction is impossible, for self-respect has vanished for the time.

If once an emulous and honest rivalry in industrial and social thought and action could be discerned in the movement of certain trades, improved skill and increasing comfort, prosperity, and happiness amongst all classes of working men would follow. We appeal to the employers of labour, large and small, to do their part in leading to a new departure and assisting in the formation of a new growth of industrial training and opinion. Let there be manifested less cold reserve in the relation of employers with their workmen, and the familiarity that is said to breed contempt will not arise, but the confidence that encourages honest service and sacrifice (when needed) will be developed for the mutual benefit of both parties. Capital and labour should never be antagonistic, for it is hard and persevering labour honestly performed for years on the part of many industrious workmen that produces the best and most prosperous examples of capitalists. Skilled labour, wisely directed, is in itself capital, or the main and normal source of it. Labour conquers all obstacles, although it may occasionally be impeded; but ignorance and idleness allied are sufficient to defeat the noblest enterprise. Want of knowledge is want of capital, and want of energy, even where knowledge and skill are present, frustrates the best intentions and renders failure inevitable.

As we appeal to employers, more earnestly still do we appeal to workmen to wake up, even at the eleventh hour, and rub the sleep from their eyes. It is useless, perfectly useless, and maddening in these days to behold large bodies or societies of men dreaming their time away month after month and year after year, and allowing their fancy to be tickled alone with the faded political glories of the past. Use yourselves and your best faculties, workmen of to-day, but do not allow yourselves to be used by others in the sense of being duped or misled. Meet as often as you will, but let it be for a progressively good purpose and not for a driftless talk and passing resolutions that end in air, and which seldom or ever are carried out, and if they were really carried would, in many instances, result in disaster. Sell your labour if you can to the highest bidder—it is your right, if the state of the market answers; but always look before you leap, and carefully consider whether constant work at a certain fixed figure is not better than temporary employment at an inflated rate at the hands of a stranger, who will fling you aside when his purpose is served. Avoid “strikes” if possible, and only resort to them when all other means of adjustment fail. As we condemn “strikes” so do we “lock outs,” for seldom are either justifiable. If organisation is useful for party purposes, it is useful for educational purposes. If scientific and art societies are useful for the advancement of the sciences and the arts, a trades union or society ought to be no less useful for the interests of improved handicraft, for all crafts are founded on scientific principles. Architects and engineers or other cognate bodies meet not to benefit other bodies to the neglect of their own educational and industrial interests; and why should not our trade

societies take a leaf out of their books, and educate their party or members as far as present-day facilities are available?

We must stop here for the present. In what we have written we have little more than outlined a plan or system open to adoption, and susceptible of many improvements by the friction of honest public criticism. Our objects are obvious—neither more nor less than the common good of all, and irrespective of sect or party. Would that we could hope that our advice would be taken in the spirit that it is volunteered, and that employers and workmen would unite, that industrial knowledge might spread far and wide for the mutual advantage of themselves and their country.

#### DUBLIN PORT AND DOCKS IMPROVEMENTS.

REPORTS of public bodies, to be useful, should be timely—that is, they should be issued as soon as possible after the close of the year or half-year which they cover. In this respect the report of the Dublin Port and Docks Board may most favourably compare with those of any other body of similar dimensions in the kingdom. Well arranged and well printed, the present report, ready last month, and furnishing a statement of the accounts, receipts, and expenditure of the Board till the close of the late year, is entitled to commendation, and in its materials it is suggestive of much that we would like to discuss if time and other exigencies were not pressing in other professional fields of our advocacy.

Before giving the engineer's report, which we think may be appended without any criticism at present, we will quote some figures from the report of the secretary (Mr. N. Proud). The registered tonnage of the late year as regards shipping entering the harbour was a total of 2,026,185 tons, showing an increase over the year 1877 of 52,404 tons. The receipts were £62,417 9s. 10d., giving an increase over the previous year to the extent of £2,166 11s. There was an increase in the tonnage of continental port steamers, a decrease in sailing vessels, an increase in the tonnage of vessels with corn and flour, and a slight decrease in the tonnage of other vessels. We regret to note a decrease to the extent of 2,366 tons in vessels with timber, and it has been publicly stated that the Board gives facilities for the importation of timber manufactured into furniture, while it handicaps the importation of the raw material by certain charges. The tonnage on the coasting or general cross-channel steam service shows a decrease in several thousand tons, while the sailing vessels in the same service show an increase. Steamers and sailing vessels with coal show a tangible increase.

*Re* improvements, the works commenced in 1869 on Sir John Rogerson's-quay, to allow foreign vessels to discharge alongside without incurring the expense and delay of lightening at Kingstown, show a total length of completed work 2,300 ft. long. Vessels drawing from 20 to 22 ft. can now be afloat at all times of tides. The cost amounted to £131,302 4s. 1d., exclusive of £4,947 expended in dredging. To meet the increasing requirements of the foreign trade, the North Wall quay extension was begun in 1870, and has since been prosecuted. The completed portion is now available for large oversea ships on both sides,

having a roadway or quay between 250 ft. wide. There is thus at the North Wall Basin and by the mouth of the river double room for vessels—a depth of 22 ft. at low-water spring tides on the river side, and 24 ft. on the north or inside, giving a tidal berthage or accommodation, as the report says, “of a depth unknown in most harbours.” The present completed length of quay wall is 2,530 ft. The sum of £11,715 odd was expended on the construction of this quay wall within the year, making a total cost to the present, exclusive of dredging, of £97,267 odd. The amount expended in dredging the basin and wall foundations has been £24,131. *Re* the cross-channel steam trade, the facilities given in the port by the providing of berths and shed accommodation have largely increased the trade. The Holyhead and Liverpool companies have paid in tonnage dues last year £20,604 odd. By the re-building of north quay wall for the accommodation of this cross-channel steam traffic, 1,717 ft. of quay-ago, having a depth of 15 to 16 ft. at low water, has been provided, enabling vessels to come in and go out independent of the tide. The cost, including ordinary shed accommodation for facilities, &c., was £88,438 odd. The cross-channel steam service shows an increase during the last ten years of 280,777 tons. The total cost of new works executed within the last ten years, and intended for the oversea trade, coasting trade, new steam dredger, and various other works, make a total of £453,376. This sum has been expended over and above ordinary maintenance in the general improvement of the harbour, the difference, £202,726, between the existing mortgage debt, £250,650, “having been defrayed by the surplus revenue of the port after payment of ordinary maintenance.”

We have already drawn attention to the bill promoted by the Board asking power to borrow an additional amount of £250,000, with the view of providing berthage accommodation, and carrying out other detailed improvements. This project is at present being canvassed by the Dublin Chamber of Commerce, the Corporation, and other bodies, and it is possible opposition, as usual, will be the order of the day. No doubt there are clauses in the proposed bill which are open to objection, and possibly they will have to be modified, if not eliminated. The Corporation must have its finger in the pie, and we grant that both the Corporation and the Chamber of Commerce have interests to protect. The progress of the works at the new bridges will be found in the engineer's report. Carlisle Bridge is expected to be completed in the spring of next year, and the new opening bridge at Beresford-place, it is anticipated, will be ready for traffic in the course of the present year. We hope when the time comes for opening and naming the new bridges that the suggestions already made in these pages may get consideration, and that the memory of James Gandon will be linked with some work of importance in a city which that great architect did so much to adorn. The tenders for supplying light apparatus for the North Bull Wall Lighthouse have been invited. The sum of £1,740 odd has been expended on the work of construction within the year, making a total of £3,714 5s. 9d. *Re* South Quays, a further sum of £455 odd was expended within the year in paving the roadway at the deep-water berths at Sir John Rogerson's



Quay, in addition to £1,959 odd expended in previous years.

*Re Custom House Docks*, the account of these concerns show a balance to credit of £3,819 odd. During the course of the late year the Board were called upon to pay £2,718 odd, an account of grain "delivered in error upon orders issued by the original owner, after he had transferred the grain to another merchant. In consequence of the pecuniary embarrassment of the party, the Board have up to the present been unable to recover beyond a small portion of the amount of the sum for which the Board were liable." We suppose the Board in this case will perforce have to show their magnanimity, and write down the remaining balance as a bad debt, and be more cautious in future in respect to countermanded orders. According to the report considerable laxity had prevailed in the collection of charges upon the delivery of goods, but instructions have now been given for the collection of all charges previous to delivery, and that all arrears appearing in books should be collected with the least possible delay. A very wise resolve: and if the same was carried out years ago in the Collector-General's Office, the present head of that department would not have his present disagreeable duties to perform, nor would the city be suffering so much from the fraudulent practices of "scamping" landlords and house owners, and the perfunctorily-performed duties of rate collectors and other responsible officials.

The total amount due on mortgage bonds of the Board on the 31st of last December was £250,650, and the annual amount of interest payable thereon £10,622 12s. 6d. The accounts of the Board as a whole are clearly stated, and what is wanted in any particular direction is easily found. We are not disposed to pick out certain items for comment, where the work in general is satisfactorily performed.

The following is the report of Mr. Bindon B. Stoney, the efficient engineer of the Board:—

*Carlisle Bridge and Swing Bridge at Beresford-place.*—At Carlisle Bridge the foundations of the two south and the north-west abutments, together with those of the adjoining wing walls and quays, were laid and the masonry built thereon up to half-tide level, and the four iron caissons for the piers of the side additions were founded on the solid rock at a depth of from 13 to 19 ft. below low water. They were then filled with concrete and connected with the piers of the old bridge. The arches of the east side addition were raised over high-water level, and the centerings for the north and south arches of the west side addition were erected and some courses of masonry built on the corresponding piers. The supply of stone and the progress of the masonry were retarded by the exceptionally severe weather at the close of the year. At the Swing Bridge the south pier and corresponding arch were built, and the adjoining wing and quay walls, with the exception of a small portion of the parapet, were completed. The centre pier, the foundations of which were laid at a depth of 19 ft. below low water, was finished, and the ironwork and machinery of the swing bridge, together with the greater portion of the permanent stazing around it, were completed. At the north side of the river the single-pile cofferdam was closed and proved very water-tight, and the excavation for the north pier was carried down to the rock at a depth of 17 ft. below low water for 30 ft. in length of the pier, and some of the masonry of the old quay was removed preparatory to getting in the north abutment.

*North Quay Extension.*—The engines and machinery of the Shears and Bell Floats were thoroughly overhauled, and the lifting chains of the former were re-tested to the same proof strain as at first, and showed scarcely any indications of wear. Foundation blocks were laid for a length of 387 ft., of which 243 ft. are along the west and return walls of the basin, and 144 ft. in extension of the river face. The dredging along 800 ft. of the inner quay is now

finished to a depth of 24 ft. at low water in line of keel, and vessels of very large size indeed can safely discharge alongside. This is probably the deepest tidal quay berth in the world.

*Lighthouse at end of North Bull Wall.*—A solid masonry base extending to 19 ft. over low water has been built on top of the two large foundation blocks which were laid in the previous year, and a four-storied iron tower reaching to a height of 58 ft. over low water has been erected on top of this masonry and firmly connected therewith, and the windows, doors, and inner sheeting are completed. The lantern has been put together, and is ready for erection as soon as the weather permits.

*South Quays.*—The piling, commenced in 1876, along the deep-water berths at Sir John Rogerson's-quay has been extended further, and 1,510 ft. in length are now finished where some of the heaviest traffic occurs.

*Tramways.*—A second line of tramway and two junctions have been constructed on the North Wall opposite the stores of the City of Dublin Steam Packet Company, and a short cross line has been laid opposite the new terminus of the Great Southern and Western Railway. The cost of these tramways was defrayed by the two companies respectively.

*Sheds.*—An open shed, 120 ft. in length, has been erected on the North Wall at the eastern berth allocated to the Glasgow steam trade.

*Wharves.*—200 ft. in length of the decayed superstructure of No. 4 Wharf has been renewed, and the remainder will be repaired in 1879.

*Custom House Docks.*—Extensive repairs have been carried out on the roofs of Stacks B, C, D, V, and W, and also at the northern vault of Stack W, which fell in the early part of the year, in consequence of the subsidence of the large sewer over which the vault was built.

*Dredging.*—The hull and machinery of No. 3 Steam Dredger have been thoroughly repaired, and a new boiler put in place of the old one, which was 15 years old, and quite worn out. The widening and straightening of the channel between Ringsend and the Pigeon House have made fair progress, and the trawlers' pond has been extended further eastward. About 35 acres of the North Wall Basin are now dredged to a depth of from 14 to 24 ft. at low water, the greater depth being in the vicinity of the new quay walls. The navigation channel between the quays has been maintained to the proper depth, and some shallow spots have been removed near the Pigeon House and between it and Poolbeg, but there is still much dredging required in this part of the river. Recent improvements in the port now enable oversea vessels of very large size to lie safely alongside the quays and many of the coasting steamers to sail at fixed hours; and the tonnage of the port, notwithstanding the almost universal commercial depression, has exceeded 2,000,000 tons in the year 1878, and has doubled within the last 18 years—a result, no doubt, mainly due to the harbour improvements effected during the last 10 years.

#### DRUMCONDRA AND GLASNEVIN TOWNSHIP WATER SUPPLY.

THE supply of Vartry water for the township was considered at the last monthly meeting, on the 2nd inst. We give the gist of the proceedings, as the question of the future water supply of this new township is a subject of importance, as also because a register of the action of the Corporation in the matter may be of some use hereafter, when other questions come to be considered:—

A letter was read from the Waterworks Committee of the Corporation in reference to supplying the township with Vartry water, and stating the terms upon which they would consent to supply the water. The chairman said at the last meeting an offer was made by the Corporation, to which the commissioners could not agree, and since then a sub-committee had waited on the Waterworks Committee, and they had received a letter in reply. The letter was then considered. The committee were prepared to recommend the council to grant the supply. The first clause was as follows:—"That the Corporation shall supply all houses within the township with water for domestic use only, equal to the rate of 20 gallons per head per diem for each inmate, such supply to be contingent on the ability of the Corporation to give it without danger to their existing obligations." The second clause stated—"That the Corporation shall be paid for supply a bulk rent equal to 6d. in the pound on the Government valuation of all houses within the limits of the township, whether supplied with water or not (except institutions referred to in clause 7), such payment to be made quarterly by the commissioners." Thirdly—"That no supplying pipes are to

be laid by the commissioners or to be required by them to be laid into houses or premises valued under £5 annually, without special arrangements with the Corporation."

Mr. Casey said every inmate in the township was entitled to 20 gallons per day; and if houses under £5 were to be excluded, the commissioners would be paying double, because those people would have to be supplied from the fountains.

Mr. Barre—But they don't restrict us in the quantity those people may take from the fountains.

Mr. Kennedy—Who will charge the water-rate?

Mr. Casey—The commissioners.

Mr. Kennedy—Have we power to charge more for the water than we pay to the Corporation?

Mr. Casey replied in the affirmative.

The secretary continued reading the clauses:—"Fourthly—All water required by the commissioners for the supply of public fountains, for watering the roads, fires, &c., to be paid for at the rate of 6d. per 1,000 gallons. Fifthly—Water to be taken or used by hose, either for public or private use; also for all extra supplies beyond what are known as supplies for domestic uses, are to be paid for at the price charged in the city. Sixthly—All supplies for manufacturing or trade purposes, and for supplies by meter to large consumers, as also to all colleges, schools, and religious communities, are to be in the hands of the Corporation, and to be dealt for with them directly, and to be charged for as may be agreed on between the Corporation and the parties requiring such supplies."

The chairman, referring to the last clause, objected to the Corporation assuming the functions of the commissioners.

Mr. Casey—That provision is in force in all the townships.

Chairman—If possible I would resist the adoption of that clause, because I think we should be independent in our own little township. Clause 7 mentioned the institutions exempted from this arrangement. Clause 8—The pipes at present laid down in the township, and which are the property of the Corporation, to be utilised as far as they can, and any additional extended pipes required for giving domestic supplies, to be laid by the Corporation workmen at the expense of the township, and to become the property of and be under the control of the Corporation, the cost price to be paid for by the Commissioners. 9—The Corporation officers and authorised workmen to have free access at all reasonable times to all the premises within the township for the prevention of waste and for inspection of water apparatus, with full power to cut off and remove all imperfect and unauthorised pipes, hose, or other apparatus, and to cut off, stop, and discontinue any secret or unauthorised supply; and stipulations to the foregoing effect to be made by the commissioners with all persons who may take or apply for supplies of water within the township, and the commissioners to aid in the prevention of waste and unauthorised use of water, and to prosecute for such offences where, in the opinion of the Corporation, it may be necessary to do so. The tenth clause was purely formal.

Mr. Casey considered the eighth proposition illegal.

Mr. Kennedy—The pipes already laid are the property of the North Dublin Union, and it is only right the pipes laid by the Corporation should become their property.

Mr. Casey—Mr. Carton has given it as his opinion that the pipes ought to remain the property of the township.

Mr. McCarthy—I expressed an opinion about a month ago that the ratpayers should have a vested interest in the pipes.

Chairman—If the Corporation is in a position to say they will not give us water unless we consent to this proviso, we must make some concession.

Mr. Casey pointed out that the Commissioners were trustees for the ratepayers, and the pipes would be bought at the expense of the ratepayers. If the Commissioners took upon themselves to give those pipes to the Corporation, the poorest ratepayer could upset the bargain, as the Commissioners had no power to make it.

A further running discussion took place, in which it was queried what should be done if the Corporation refused to supply water on any other terms than those proposed by them, and the answer given by Mr. Casey was that the commissioners could go to one of the superior courts. It was hinted by a commissioner, who was also a member of the Corporation, that the latter body was acting under eminent legal opinion, but, as a member of the Waterworks Committee, he refused to state who was the eminent legal adviser of the Corporation. It was eventually decided by the Drumcondra Commissioners to request



the sub-committee to wait again on the Waterworks Committee to try and obtain a concession on the point in respect to the ownership of the pipes. What the Corporation have decided we have not yet learned; but we hold with Mr. Casey and others, that the commissioners are trustees for the ratepayers, and the property in the pipes should be vested in them. If we would throw out a hint to the independent members of the new township it would be—to act with caution, and be careful of entering into engagements that are not safeguarded by acts of Parliament. We think it would also be wise on the part of the present commissioners, and the ratepayers too, not to encourage the extension of a hybrid representation that might possibly at a future date swamp the best interests of the township, and make it in part the slave or automaton of another body, and the very negation of a healthy and independent representative body of local rule.

### THE SEWAGE GAS AND VENTILATION DIFFICULTY.

In our present issue Mr. Buchan adds another contribution towards the solution of those difficulties that beset a modern sanitary engineering practice. Mr. Buchan has the courage of his opinions, and none will deny him the possession of much industry and energy in his calling, and a desire to make the path easy for others if he is not entirely successful himself. As a matter of strict justice, we commend his plans to the serious attention of all architects, engineers, and intelligent house-owners as ones entitled to trial, as also to unprejudiced criticism on the part of professional men anxious to find the best solution of the sewage gas problem. For ourselves, we are not wed to any particular patent, and we would be pleased to elicit and publish in these pages the conscientious opinions of any qualified practitioner in review of Mr. Buchan's plans, or in practical exposition of a better system, even though it should be the critic's own.

### THE MIDLAND GREAT WESTERN RAILWAY.

At the half-yearly meeting of this company, held on the 6th inst., at which the reports and accounts submitted were taken as read, the chairman, Sir Ralph Cusack, entered into a lengthy statement of the prospects and position of the company, and in refutation of charges of mismanagement preferred by Mr. Price, their late engineer. That portion of the chairman's statement dealing with the accounts is too long for reproduction in these pages, so we will content ourselves with an extract in regard to contracts and works executed:—

The chairman said the meeting were aware that occasionally things were required by the Government that were very useful and necessary, and it was very well, in some instances, that they had the Government Inspectors to aid them. The double line of way between Inny Junction and Longford had been open since the 12th of November. The second line from Athlone to Roscommon was not open yet. Considerable delay and expense has been involved in connection with a bridge at Mote Park river, between Athlone and Roscommon. In April, 1877, they entered into the contract for the doubling of their line between Athlone and Roscommon, and they had from their late engineer a positive assurance that the contract was to include everything. Last year Mr. Slaton was near getting himself into trouble by stating that this unfortunate bridge had been "botched." If he had the plans before him he need not have been afraid of the case that was sought to be got up against him. The contractor having worked up to the bridge, in October, 1877, announced to Mr. Price that he could not carry out the work according to the original plan signed by Mr. Price, which provided that the foundations should be 5 ft. 6 in. Mr. Price left them, and in April last Mr. Greene, their present engineer, made a plan in conjunction with Mr. Bagenal, their contractor; and upon that plan they were obliged to take a fresh contract, and the bridge was now constructed on foundations of 43 ft. 9 in. The whole

thing had cost something like £1,500 extra. Then the girders had to be put in. Girders had been constructed by Mr. Price with his own hand, and were ordered from a very respectable firm—Messrs. Coates, of Belfast. After they were delivered Mr. Greene saw that there must be some mistake about them. He referred to the plans and found that Messrs. Coates had kept to them to the hair's breadth. The board directed him to send the tracings to the Board of Trade; and in a few days afterward they received a reply from Col. Rich, the inspector of that district, to the effect that the girders were not capable of bearing more than five tons to the square inch, exclusive of rivets, whereas the strain they were required to bear was twelve tons to the inch. It was very fortunate that the Government Inspector was between them and harm's way, as otherwise the first train that went over the bridge might have gone down into the Mote Park river. The next unfortunate accident was in connection with the balance bridge crossing the canal near Newcomen-bridge. At the last half-yearly meeting he was censured for not pressing the shareholders to give the £900 to Mr. Price. He would tell them now what he did not tell them then—because he never thought that Mr. Price would have treated them as he had done—that what influenced him in the matter was the transaction connected with that balance bridge. The Government Inspector of the Board of Trade directed them to raise the lift bridge that was originally there. Mr. Price said it could be done easily, and was directed to get it done, and employed Messrs. Courtney and Stephens to carry out the work. At the end of a few weeks the whole thing tumbled down and broke into little bits. Mr. Price reported to the board on the following day that the castings were not according to the designs furnished, that the contractors were to blame, and that the company would not have to pay. At the first board meeting after Mr. Price resigned, after he had been told what the directors would recommend the shareholders to do for him, he said before leaving the room—"I wish to pledge my word to the board that I am in no way to blame for the lift bridge; Courtney and Stephens are to blame, and you won't have to pay them." Mr. Price was asked to give that in writing, and there was his letter to the secretary reiterating the statement that the bridge was constructed in violation of the specifications, and that the company would not have to pay for it. Now, the shareholders would hardly believe him (the chairman) when he told them that in twenty-one days after that letter was written, Messrs. Courtney and Stephens having furnished their account, Mr. Price gave them in his own handwriting an unqualified certificate "that the entire of the work"—that was the bridge that tumbled down—"was carried out according to agreement, and to his entire satisfaction." And it was supposed that after that he (the chairman) was to come there and advocate strongly the giving to him of £900. He told them plainly that he could not do it. The works were put up to their satisfaction, but the whole thing cost nearly £1,500. That and the Mote bridge cost them about £3,000; but he did not see that the directors could be held answerable for either, as they were not engineers. A statement had appeared in the *Railway News* that Mr. Price had resigned his situation there not from ill-health, but because he could not sign accounts which he did not consider *bona fide*. They had Mr. Price's resignation, in which he stated that he took that course in consequence of ill-health, and he forwarded to the Railway Clearing House Superannuation Society a solemn declaration under his hand that he left that company's service from illness alone, and appended a certificate from two physicians of considerable eminence in the city, who would be above writing what was not true; and he was paid his money. Did he leave from ill-health, or did he leave because he could not sign accounts? He (the chairman) thought there could be no doubt as to how the fact was. In conclusion, the chairman said he would not draw any favourable pictures of the future. He regretted to say that in the months of January and February alone the traffic at the North Wall Station alone had decreased 4,595 tons, representing £3,761. The directors would do all they could to keep the expenses within bounds, but he did not see what they could do to increase the traffic until the country progressed. He had looked into the falling off in the goods traffic, and thought he saw the reason of it. Provisions were cheap in the country, and the people, having enough to live on, were sending nothing to be sold, and had not money to get down much. Manufactured goods from across the channel were not going down to the country, because the people had not money to buy them. The market tickets that they used to issue in thousands at the different market towns had come down by half; and harvest men were not going to England in the same numbers

as before. These things affected other railways, but they were more susceptible to them, because they had no manufactures, and were dependent solely on agriculture. He hoped that better times would come.

After a long discussion of a somewhat animated kind, a dividend of 4 per cent. was declared and carried along with the following resolution:—

"That the marked thanks of this meeting are hereby presented to the chairman and directors for the management of the company's affairs, and to express the continued confidence of the shareholders in them, and also in their officers, as well as their entire belief in the ample refutation of the statements made against the company's interests."

As a matter of justice to Mr. Price, the late engineer of the company, we append his letter in reply to the statements of the chairman of the Midland Company. Mr. Price begins by stating that advantage was taken of his absence from the meeting to prefer charges behind his back which the chairman dared not utter before his face in September last, and goes on to add:—

I can only say generally they are as true as the accounts, and as many will believe the one as the other. They took the same time in hatching as the suspense account which I discovered in embryo in January, 1878, and pointed out by word and letter it was coming, and it has come in the shape of £18,453, and with it the declining glory of the Midland, which can now, all of a sudden, boast of the largest suspense account of any Irish railway. Why is there no engine suspense account? Are all purchased charged off? As to my buying shares, the chairman knows very well I sold the greater part of my Ordinary Stock in September, and bought £1,200 of debentures, not shares, for temporary deposit, and sold the greater part of these out again in two months. Only one of my friends ever bought in since, and that at 94, against my advice. As to the little story of Mote Park Bridge, I provided for piling by means of a schedule of prices in the specification, which is the usual practice till depths are ascertained. All the other charges are uttered in the anger of despair. The suspense account now exists, and it is apparent that it was accumulated in bygone half-years, as alleged by me, not in the last; see the figures,

Rails alleged to be laid, see capital account:—

	Tons.	Alleged Cost.
June 30th, 1878	4,233	£14,546
Dec. 31st, 1878	3,020	£39,627

I neither believe the one nor the other, the latter is as much too great as the former is too small; this I stated in September. Are the other directors still ignorant that 4,233 is not to £14,546 as 3,020 is to £39,627. The Act of Parliament 31 and 32 Vic., c. 119, laid down a form of accounts which cannot be deviated from except by consent of the Board of Trade, under a penalty of £5 per day, for the purpose, it would appear, of showing clearly to every shareholder the state of affairs. This form has been deviated from in the last Midland account, and a suspense account put in under an illegal heading, "Extra Relaying," and in the wrong place, whereas the law requires suspense accounts to be put at the end of general balance sheet under the well-known odious name of "suspense accounts." This Act of Parliament also states that if any "statement, balance sheet, &c., is false in any particular to the knowledge of any person who signs it," he is liable to fine and imprisonment. Was not the engineer justified in pointing out at least his view of any particular statement which he felt constrained to refuse to sign? Finally, as to a confidential officer, and breach of confidence, it would be well for many a concern if confidential servants were also honest.

We think there is something more at the bottom of this alteration between the company and their late engineer than has yet transpired. Some matters at issue appear clear enough, but there are others concerning which we would like to have a little more definite information. As the case stands, we have a series of contradictions on each side in which not a small amount of personal feelings appear to be manifested. We are not interested in defending the company as against their engineer or *vice versa*, but despite the depressed condition of trade for some months, we would have expected to find the affairs of the Midland Great Western Railway Company in a more prosperous and promising condition.



### THE NORE VIADUCT AT THOMASTOWN.\*

THE history of the viaduct which carries the Waterford and Central Ireland Railway over the River Nore is somewhat peculiar; and the author hopes it may prove of sufficient interest to warrant his laying before the Institution some of the incidents connected therewith, the details of which he has been able to collect, or which have come within his personal knowledge.

The original structure appears to have been designed by Captain Moorsom, and erected principally under his direction, and the supervision of the late Mr. Charles Tarrant. It consisted of timber lattice girders of 200 ft. span over the river, resting on heavy masonry abutments, the length over all being about 428 ft., and the height of the rails over the bed of the river about 78 ft. The width between the parapets was about 25 ft., and Captain Moorsom states that the viaduct was designed for a double way, though only a single line was laid over it. The work was commenced in August, 1846, and completed in May, 1850. The contractors for the masonry were Messrs. Hammond and Murray, of Dublin. The timber work was constructed by Mr. Robert Mallet, M. Inst. C.E., and supplied by Messrs. J. P. Graves and Co., of Waterford and New Ross. The cost of the former, according to Captain Moorsom, was £4,800; that of the latter £3,300.

The author entered into a lengthened statement as to the dimensions of the viaduct and the methods adopted for its construction. He referred to the inspections made by the Board of Trade, and quotes largely from the reports of Captains Wynne, Tyler, and others, as to the state of the viaduct at various periods.

In 1875 the directors decided that the substitution of an iron superstructure in one span for a single line of way should be proceeded with, and early in 1876 the contract for this work, on designs prepared by the author, was entrusted to Messrs. Courtney, Stephens, and Bailey. The main girders of the bridge which has since been erected are each 212 ft. long, the extreme depth at the centre is 25 ft. 6 in., and at the ends 5 ft. 9 in. The flanges are trough-formed, 3 ft. wide and 15 in. deep. The bottom flanges have a camber of 4 in., and the tops are curved to a radius of 294 ft. 11 in. The top flanges are made up each of two web-plates 15 in. by  $\frac{1}{2}$  in., two angle irons 4 in. by 4 in. by  $\frac{1}{2}$  in., and two plates, each 3 ft. by  $\frac{3}{8}$  in. throughout, with an additional plate 3 ft. by  $\frac{1}{2}$  in. for 157 ft. 6 in. in the centre. The bottom flanges are composed of the same rolls as the top, except that the third plates at the centre are  $\frac{3}{8}$  in. instead of  $\frac{1}{2}$  in. thick, are each 2 ft. shorter, and than an angle iron 5 in. by 3 in. by  $\frac{1}{2}$  in. is riveted along the inner edge of each flange to support the ends of the planking. The web consists of a diagonal bracing arranged in a double system of triangulation, dividing the flanges into fifteen equal bays. The compression lattices are internally braced with lattice bars, 3 in. by  $\frac{1}{2}$  in., except those at the ends, which have solid webs. Over the bearings and up to the points of the first lattices, web plates the full depth of the girders are riveted on both sides to the top and bottom flanges, and to the lattices, stiffened with T and angle irons, giving great strength and rigidity at the ends. At the intersection of the diagonals in the bottom flanges, which are 13 ft. 4 in. apart, the cross girders are suspended. Supported on these, and immediately beneath the rails, there are longitudinal bearers.

To give lateral stiffness to the structure, the cross girders are riveted to the bottom flanges, and diagonal wind ties introduced, while midway between the apices in the top flanges, where headway permits, there are compound latticed cross stays, with diagonal

tie rods. Both the ends of the main girders and of the rail bearers which rest on the abutments are bedded on cast iron shoes, seated on large stone blocks, built into the masonry. At the south end rollers are placed between these shoes and the girders, to allow for expansion and contraction.

The structure is designed for a passing load much in excess of anything it is at all probable it will ever have to carry, the strains in each member being calculated for the position of this load, which induces in it the greatest stress. In the flanges this is equivalent to a distributed load of about 500 tons, and as (in compliance with the Board of Trade requirements) none of the iron is strained under this load beyond 5 tons to the square inch of sectional area, it follows (assuming, as is usual, that the breaking weight of wrought iron is 20 tons to the inch) that it would require an insistent distributed load of 2,000 tons to cause the failure of the main girders. Deducting from this the dead weight of the bridge itself (about 220 tons) there remains 1,780 tons as the distributed breaking live load, or about the weight of forty-five engines and tenders of the heaviest class in use on the line.\* Laterally, the structure is more than amply rigid to resist the most violent gales which occur in this country.

The erection of the new bridge was commenced in the autumn of 1876. A siding was first laid in at the place, and signals provided. A staging, resting on the piers erected in 1872, was carried up through the old superstructure, independent of it as regards vertical support, and the building of the main girders proceeded with, there being sufficient room between the timber girders to do this without cutting away any portion of them, the bottom flanges of the new girders being placed above the level of the old flooring. The work was carried on without misadventure until the end of the following January. On the morning of the 30th of that month, however, a serious misfortune occurred. At this time the bottom flanges and ends of both main girders had been fixed in place and riveted up, each weighing about 40 tons. The lattices had all been erected, and with the web-plates and angle irons of the top flange and four of the top cross braces, were secured by bolts and drifts. On the evening of the 29th there was a violent south-westerly gale, which buckled the old superstructure to such an extent that the rails at the centre were forced fully 2 in. out of line, and the bottom flanges of the new girders bent to an even greater extent. Towards morning the gale increased, and before daybreak so much of the new bridge as had been erected was blown down, the eastern girder falling across the parapet of the old bridge, the western girder falling across the rails and the bottom flange of the other. As this occurrence blocked the railway, steps were at once taken to erect temporary platforms at each end, and clear a foot passage across the bridge, which was done in a few hours. By this means the passenger traffic was carried on, the trains meeting at the bridge, and the passengers walking across.

The ends of the masonry parapets on the east side, from which the stirrups supporting the struts were suspended, were crushed in the fall by the ends of the iron girders; but as the principal shock was sustained by them, little damage was done to the old superstructure, a capping which covered the top string being almost the only portion of the timber much injured. Every exertion was made to clear the line, but owing to the difficulty of handling such large masses of iron and the shortness of the days, this was not accomplished till the afternoon of the 2nd February; and as then a considerable quantity of the ironwork was still resting on the old superstructure, carriages and wagons only were allowed to cross, the author not deeming it advisable to allow engines to pass

over. Two days later the greater part of this weight having been removed, the old bridge was tested, and as the results obtained were satisfactory, the ordinary traffic was resumed. In clearing the line it was found necessary in the case of the western girder, which was uppermost, to separate the end posts from the bottom flange by cutting the rivets; but the bottom flange and ends of the other girder weighing, as has been before stated, about 40 tons, was lifted into its place in one piece. This was done by means of screw-jacks and two 10-ton travelling cranes, kindly lent to the contractors by Mr. Alexander M'Donnell, M. Inst. C.E., Locomotive Superintendent of the Great Southern and Western Railway. It was found that a good deal of the ironwork, principally in the lattices, had been twisted and bent by the fall, but little was so much injured as to preclude its being straightened and used in re-erecting the girders—a work which was immediately proceeded with.

The extent of the deviation from the straight which it was found the old superstructure had reached after the gale alluded to, was such that it was deemed advisable to take precautions against its being blown further out of line. For this purpose advantage was taken of the formation of the ground, which afforded a ready means, as the river which flows from the south-west to the north-east and passes under the bridge at an angle of about 60 degrees, bends further to the south at a little distance above it, the land rising abruptly to a height of some 50 ft. over the water-level. A point on this high ground, about 200 yards to the west, and directly opposite to the centre of the bridge, was selected, and on it a good anchorage provided, to which the superstructure was attached by two 3-in. charcoal wire ropes. These ropes were secured to rails placed vertically against the outer face of eastern girder, dividing the span nearly equally, and bearing against the faces of all the chords. The ropes were strained up until the bridge was brought back about  $\frac{3}{4}$  of an inch, when they were made fast. The number of violent gales which occurred before the new structure was completed showed that this precaution was not unnecessary.

On the 24th May following the new main girders were so far completed that the packings under them were removed. Each girder subsided a trifle less than  $\frac{3}{4}$  of an inch at the centre, but as they had been wedged up till the bottom flanges were somewhat above the level of the fronts of the shoes, this deflection would represent something more than was due to the exact span. The deflection in the top and bottom flanges were not appreciably different.

On the 3rd August the bridge was tested with five engines and tenders, covering the whole span, and weighing in all nearly 200 tons, the heaviest engines being placed in the centre. The deflections were measured in the top and bottom flanges of the main girders, in all the cross girders, and in all the rail bearers. In each of the main girders the deflection at the centres was  $\frac{3}{4}$  of an inch in the bottom, and 11-16th of an inch in the top flanges. The greatest deflection obtained in any of the cross girders or longitudinal was about  $\frac{1}{8}$  of an inch in excess of the main girders at the same place, and the elongation of the bottom flanges, as registered by the movement on the rollers, from  $\frac{3}{8}$  in. to  $\frac{1}{2}$  in.

The test load was passed over the bridge at various speeds, and was kept standing on it for a considerable time, but there were no perceptible differences in the results recorded, and in no case was any permanent set obtained. The greatest amount of vibration at the centre of the top and bottom flanges of the main girders, when the test load was passed over at a high speed, was 5-16th of an inch, there being no perceptible difference in the amounts registered in each of the four cases.

To carry out the tests referred to it had been necessary to transfer the weight of the

\* By Mr. Charles R. Galwey. Read at Institution of Civil Engineers of Ireland, March 5th, 1879.

† An account of it is given by Captain William Search Moorsom, in a paper recorded in the "Proceedings of the Institution of Civil Engineers," vol. xi.

\* The main girders weigh each about 79 tons; the iron cross structure and bracing, 304 tons; the rail bearers or longitudinal, 11 tons; timber, rails, and ballast, 30 tons; total, 224 tons, of which about  $\frac{3}{4}$  tons rest on the bearings.



passing load from the old to the new superstructure, and, as the results were satisfactory, the traffic was continued over the new bridge, and the work of taking down the old structure and staging at one commenced.

As is usually the case, the state in which the timber was found varied greatly in different parts of the work, particularly in the portions which had not been subjected to the same conditions. In the parts of the structure most exposed to weather a great portion (principally in the upper strings) was perfectly sound. In the most sheltered situations it was quite rotten, and in almost all cases the parts of the lattices within the body of the strings were decayed to a very considerable extent. The timber which was found to be in the soundest condition was for the most part pitch pine, a fact which does not at all bear out an observation made by Captain Moorsom, in his paper, that though the timber specified was best Memel or Archangel fir, some pitch pine was introduced, by permission, "But that experience has shown it should be avoided in future."

The taking down of the old superstructure occupied about three months, and the removal of the piers about half that time. In the latter case some difficulty was experienced with the timber piles driven in the bed of the river. In most cases these were pulled by means of a combination of winches, blocks, and tackle, and levers. In some cases it was found easier to break them across at the bottom of the river by applying a transverse strain.

In conclusion the author desired to add that the manner in which the renewal of this structure was effected reflects very great credit on the contractors, and especially on those members of their staff under whose more immediate supervision the work was carried out. With only one exception (a timber superstructure which has since been replaced by one in iron) this was the last of the original timber structures on the Waterford and Central Ireland Railway, all having been renewed since the author was appointed to the line.

### GAS ILLUMINATION.\*

(Continued from page 77.)

WHEN a porcelain slab is brought over a gas flame a deposit of carbon occurs: the particles exist in the flame, and the contact of the cold slab causes their instant deposition. A similar effect is produced by a current of cold air impinging upon a flame, a portion of which is thus cooled down below the temperature necessary for the combustion of the carbon, and the flame thus exposed to the draught smokes, that is, the finely-divided particles of carbon pass into the air unconsumed. In ordinary circumstances, the carbon is consumed in the upper portion of the flame, and if the jet be a good one, and the pressure of gas not too low, no smoke is produced. In the Bunsen burner the gas is mixed with air sufficient to prevent the separation of the carbon, and hence we have a flame which is valueless as a source of light, but convenient for the application of heat. The solid particles of carbon in an ordinary gas flame result from the decomposition of the olefines and other compounds rich in carbon, which are readily decomposed by the action of heat. The same thing occurs if coal gas be passed through a glass tube heated to redness; in this case a deposit of carbon in the interior of the tube occurs at the point where the heat is applied. In gas works a similar effect is produced by the heating of the impure gas in the retorts, in which a deposit of carbon, sometimes three or four inches in thickness, is formed. This carbon was formerly used for the rods or pencils employed in producing the electric light. The presence of the particles of carbon in a flame renders it opaque, and the degree of opacity varies with the illuminating power. At the bottom of a flat flame,

where the oxygen is in excess, the transparency is such that a printed paper may be read through it as if no obstruction intervened, but the upper part almost entirely conceals the printing. The intensity of light depends partly upon the quantity of the carbon particles, and partly upon the heat of the flame by which the carbon is brought up to a greater or less degree of incandescence. Professor Frankland has shown that the light is not entirely due to the separated carbon, and that certain chemical compounds—gases or vapours—from which carbon does not separate by the action of heat, are capable, under some conditions, of giving luminous flames when burned in air. For all practical purposes, however, the original proposition of Davy may be accepted, that the light is radiated from highly-heated particles of solid carbon. When air is supplied in excess to a flame, as when the gas escapes through a fine jet at a high pressure, there is little separated carbon, the flame is transparent or nearly so, and there is very little luminosity. On the other hand, when the flame is large and sluggish, and the air in contact with it is insufficient, the solid carbon is in excess, and a part of it escapes unburnt, giving rise to a smoky flame, in which also the luminosity may be low. What we have to strive after in order to obtain the greatest possible "duty," as mechanical engineers would call it, from gas, is to burn it so as to have the flame as hot as possible, and as near the smoking point as is consistent with the perfect consumption of the carbon in the upper part of the flame. In few words, the whole science of gas lighting is the obtaining a bright flame without smoke. It was at one time accepted as an axiom that economy in gas lighting could only be obtained by the use of large burners, and that in small jets the contact of air was necessarily so complete that only a feeble light could be obtained. But this is only partially true; more precise and extended experiments have shown that the luminosity depends not so much upon the quantity of gas as upon the conditions under which it is burned. In the case of flat-flame burners, the most essential element is pressure, a high initial velocity giving a low illuminating power, and *vice versa*. I may give a few illustrations from my own experiments—the gas used being of 26 candles illuminating power for five cubic feet per hour. In all the instances I am about to quote Bray's ordinary union jets were used. The gas gave the most unfavourable result when the smallest burner of the series, No. 0, was used under comparatively high pressure—1½ in.—two cubic feet per hour gave an illuminating effect of 3·21 candles, or calculated to the standard of five cubic feet per hour, eight candles. The best result, on the other hand, was obtained with a No. 8 burner at one inch pressure, when 7·1 cubic feet gave an illuminating effect of 40·63 candles, or for five cubic feet, 28·6 candles. Here is a striking contrast, the same gas giving at one time 8-candle power for 5 ft. an hour, at another 28·6, the jets being respectively the smallest and the largest of the series of nine. But let us now take the same quantity of gas under varied conditions of pressure, and we shall see even here very marked differences. Three cubic feet burned at ½-in. pressure, and calculated to 5 ft. per hour, gave 25 candles; at 1-in. pressure, 19 candles; and at 1½-in., 12½ candles. Here we have the effect simply of pressure, which, in the case of flat-flame burners, is of paramount importance. When common gas is used, the effect of pressure is even more remarkable, the varieties being such that in some cases less than one-fourth of the possible amount of light producible is really obtained.

A remarkable effect is obtained with a mixture of cannel gas with about twice its bulk of air. At a low pressure, in an Argand jet with large holes, it gives a fairly luminous flame, while at a high pressure (3 or 4 in.), although the quantity of gas consumed is three times as great, the flame is almost

totally non-luminous, and has a greenish tint. The gas used somewhat extensively in the United States, made by saturating air with petroleum spirit, requires to be burned at a pressure not exceeding 0·1 of an inch, which can be obtained only with an Argand with very large holes, or a bat's-wing of peculiar construction, called the American regulating bat's-wing. At ordinary pressures, such as are used for coal gas, there is scarcely any light, and the flame keeps about a ½-in. or more above the burner.

It is not only on the score of economy that it is desirable to burn gas in such a manner as to afford the greatest possible amount of light. The burning of a moderate-sized jet of gas produces as much carbonic anhydride as the breathing of two grown-up men; and as, in an ordinary apartment, we have usually from three to six of these, the air becomes vitiated with remarkable rapidity. It is therefore desirable, in relation to health, to obtain the illumination we require with the least possible expenditure of gas. The sulphur in gas is a very serious drawback to its use. In burning, it is no doubt formed chiefly, if not entirely, into sulphurous anhydride; but it is soon converted into sulphuric acid, which attacks with avidity all the more readily destructible articles in the apartment. So far back as 40 years since, the effects of the sulphuric acid arising from the combustion of gas upon the binding of books and many articles of furniture were noted; and recent experiments have shown that leather, paper &c., in ill-ventilated apartments, exposed to the emanations from burning gas for a series of years, contain large quantities of sulphuric acid.

There are several qualities of gas in use in this country. The best may be described as Scotch cannel gas, as it is made only in Scotland, where the illuminating power varies from 24 to 30 candles for five cubic feet per hour consumed in a union or fish-tail jet: the average may be fairly stated as 26 candles. In London a cannel gas is used in small proportion, the illuminating power of which is about 23 candles; and in Liverpool, Manchester, Carlisle, and probably some other towns, an intermediate gas is manufactured, the illuminating power of which is about 20 candles. The common gas in London, and most other English and Irish towns, has an illuminating power of 14 to 16 candles. In the case of cannel gas, the standard is found by testing the gas by a union jet consuming five cubic feet, at a pressure of 0·5 of an inch, while the common gas is tested by Sugg's "London" Argand, consuming five cubic feet per hour, at a pressure of about 0·05 of an inch.

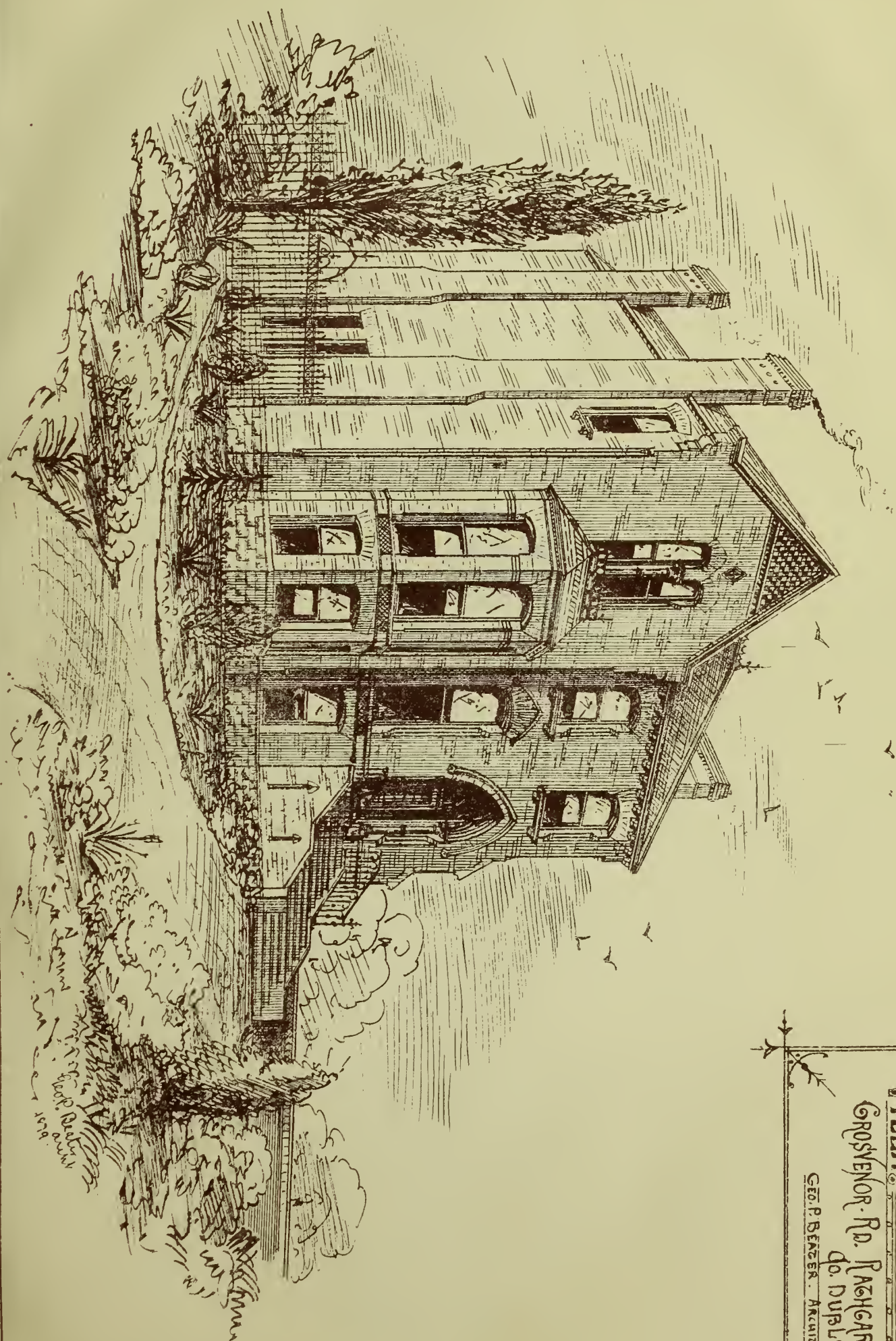
(To be continued.)

### ENGLISH AND AMERICAN LOCKS.

WITH reference to the supply of locks for the Woolwich contract, Mr. James Hill writes to a contemporary, that he did not state that all the locks supplied came from America. He was invited by Col. Wrottesley to meet the deputation from Willenhall, but declined on the ground that "a body of interested lock-makers intent on pushing their own wares were utterly disqualified to give an impartial opinion on American locks." He continues:—"Locks, like watches, can be had at any price, and my new American-made rim locks are considered by my customers to be good value for the money. The 50-year-old Willenhall lock referred to was made with common wards, and sometimes with no wards at all; the mechanism of the bolts has been proved defective, the case has no design about it, the japan and general finish are alike inferior. The keys are roughly cut, and possess little or no variation. On the other hand, the American 'imitation' locks are made with levers, the design of the case is quite unique—the only point of resemblance being the flange—the japan and general finish are incomparably good, and the keys, cut by machinery, are of a superior kind, and possess a much greater variety of combinations.

\* By Dr. William Wallace, F.R.S.E. Read at Society of Arts, January 30th.





VILLA

GROSVENOR. RD. RASHGAR.

do. DUBLIN.

GEO. P. BENZER. ARCHT. ECT.



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The Willenhall makers are evidently in error with respect to the very first item. In the first place, the Willenhall mortise lock alluded to was only recently left at the Royal Engineer Office, Woolwich, as a sample, and is nowhere fixed in the buildings in question. Secondly, this lock cost me 3s. 8d. net from the maker (which I can prove), exclusive of carriage, and not 3s., as stated. And, thirdly the selling price was invoiced subject to a considerable discount and included carriage to Woolwich. Some of the other prices gloated over should be similarly qualified. It is evident that American competition has had a very salutary effect upon the Willenhall lockmakers, and this is the sole object Col. Wrottesley had in view when he asked me to state the result of my visit to America. Prices have been reduced, and I understand that strenuous exertions are being made to improve the Willenhall productions. All this is very well; but I am reminded that, but for the introduction of American tram-cars the public would not have had the benefit of reduced fares and improved accommodation in connection with many of the English omnibuses. I am not an American, and have no preference for American locks because they are made in America. Neither am I prejudiced against English locks. I sell both, and, like other merchants, am always open to buy in the best and cheapest markets."

#### ADVERSARIA HIBERNICA, LITERARY AND TECHNICAL.

THE virtues of the old Dublin pumps, or, rather, the waters raised by them, have all but departed. Few public or private pumps now exist in our city possessing a repnte for good water, and the modern unsanitary conditions in our midst, coupled with defective sewerage, have sorely undermined the faith in the purity of the well waters of our city.

Throughout the eighteenth century and the early part of the present, the wells and noted pumps of Dublin were many, and the spas and medicinal springs of the country counted by hundreds, several of which were great resorts for the people on Sundays and holidays. Dublin and its vicinity alone was rich in wells and spas, so called, some artificial, yet all credited with some peculiar characteristic. The south city, between the line of Thomas-street and the Coombe, had several pumps and wells, the virtues of whose waters in certain disorders are described by Ratty and others. It is possible the water raised by some of these pumps in the middle of the last century was good, but we fear that not a few of them were deeply impregnated with sewage or foul drainage in filtration. The Liffey at Island Bridge towards the close of the last century supplied the city with a portion of its water for drinking and domestic purposes, and a large amount of this water was shipped for long voyages. Next came the canals; and, though a little consideration will convince the many that the canals were always liable to pollution from a variety of causes—through the bilge water and slops of barges and passenger boats, the drowning of dogs and cats, and other nuisances,—yet up till this hour there are strong advocates in our midst for a water service from our canals, and they even contend they are more pure than the Vartny supply. We, however, are not among those who firmly believe that the Vartny water is perfectly free from pollution, or that a better or purer supply from the same sources could not be secured. A good deal more care is needed than what is at present bestowed in securing the purity of the Vartny supply, and there are certain chemical properties in the Vartny water which are decidedly objectionable; and, if it were possible, we would like to see them minimised or eliminated.

Reverting to the old spas of Dublin and its vicinity, perhaps among the number there was none more popular than the water at Leixlip, while its repnte lasted. Properly speaking, the so-called spa at Leixlip was not an old one, for this medicinal spring was

discovered in consequence of the ground being cut through in the making of the canal. It was, shortly after its discovery, credited with a number of virtues, and was christened the New Spa. The disorders the water was said to cure were many, but the particular virtue was its success in scrofulous complaints. An analysis was procured at the Apothecaries' Hall, showing that the water at Leixlip cured a remarkable number of complaints—more than we care to enumerate. In the last decade of the last century the popularity of the Leixlip spa was at its full height, and legion was the number of its visitors on foot and by every kind of private and public vehicle. The water was discovered in the winter time, and its deep-seated source caused it to appear warmer than other superficial springs. On Sunday mornings in summer time strings of coaches and noddys miles long were to be seen making for Leixlip, crowds of impatient patients among the number, anxious to apply externally and internally the healing waters. Thither from the city hurried the blind and the lame, the palsied and the valetudinarian, the scrofulous and the love-sick—many with real and many more with fancied complaints, but each and all intent on having a drink, for the virtue and fashion of the thing.

The late Rev. Caesar Otway, in his "Tour to Connaught," took notice of the Leixlip spa upon his way, and tells us—"Alas, the powers of ridicule were brought to bear against it, and one wicked wight drew a caricature in which he represented a broken-down noddy as washed in the Leixlip spa water, and all its spokes and shafts, under the mopping of the jarvey, became strong and straight. This certainly was a pity, and no one in the world was served by dissipating such an innocent delusion; and after all it is a beautiful and extraordinary spring, for, if you believe all the neighbours, not a fish or frog will live in its waters; and though there is a flocculent, rusty-coloured ochreous matter constantly rising to the surface of the well exactly similar to that which is found in springs strongly impregnated with iron, yet no test of gallic acid or prussite of potash can detect any iron; but in the centre of this flocculent matter is found a *very red* little worm about a-half an inch long, which all those who have still faith in the water say is the sovereignest remedy alive for a sore leg: nay more, let any one who has drunk over night from fifteen to twenty tumblers of punch, and whose head is so hot that it makes the water fiz into which it is put, let him but take a quart or two of this spring on the following morning and he will lose all his whiskey fever, and walk home as cool as a cucumber. I assure you, gentle reader, I have seen sundry making this experiment, and I actually saw them afterwards sober." Bravo, Otway! We have no doubt at all that a couple of quarts of the Leixlip water in a drunkard's stomach would cause a revolution for the better.

*Apropos*, at Lucan there was another noted medicinal spring, which was in the demense of Mr. Vesey at the period of which we are writing. This well was sheltered in a deep niche executed in hewn stone, and there was a rural or rustic thatched seat for the water drinkers, and an area for walking about. Among the more noted provincial spas or medicinal springs were those at Swanlinbar, County Cavan, and Ballyshellan, County Kilkenny. These waters have been celebrated in prose and verse by Swift, his literary friends, and others. There were a number of so-called hot wells formerly much resorted to in the different provinces, Cork being famous for one at Mallow and other places. At the present time there are some spas or medicinal springs in the south-west of Ireland yearly resorted to, and whose waters are still recommended by some of our medical men. Whatever virtue may be contained in medicinal springs, we think the four provinces of Ireland can supply all that valetudinarians may well desire without resorting to German spas. Invalids go to the Con-

tinental to drink waters with the same properties as those to be found at home, and otherwise they purchase bottled waters at a high price from our chemists, with this other disadvantage that a similar and as good a water can be drunk at home fresh at the well-side. But 'twas ever thus. We have known Belfast and Limerick hams to be exported and coming back to Dublin again with the Yorkshire and other brands upon them. In the earlier part of this century too, before the Irish piano-making trade was crushed out, our sires have known Irish-manufactured pianos going to makers in London and coming back into the hands of Dublin buyers with the London mint-mark upon them. The Irish ladies of "quality" who bought them believed they could not procure a good instrument in Dublin, so, refusing to patronise their own countrymen, they paid a far higher price in London for the Irish-made article, and died with their illusions undisputed. On the same principle Irish ladies and lords will still resort to German springs and patronise the importers of German mineral waters, believing that even in the matter of physic the foreign stuff is the best, because it is the dearest and most fashionable.

The "intentions of pious donors" no more than impious ones are not respected in these latter days. How many asylums, schools, hospitals, and other charitable and educational institutions have not lapsed within the last century and a-half, not to go back further? Acts of Parliament, as well as dishonest trustees have made away with funds and large estates. Clerics as well as laymen, we regret to write, have appropriated property and funds that did not belong to them, and corporate and non-corporate bodies have done the same. In the course of our readings in various directions we have found moneys, and landed property particularly, which were left for founding and supporting certain asylums or alms houses, diverted into other channels or appropriated to private uses. Were a parliamentary commission instituted we are certain a strict and diligent series of inquiries in the British Islands would result in some startling disclosures, but we fear such an inquiry will never be instituted. If it were it would be found that some of our legislators are enjoying property and funds that do not belong to them, although they may have inherited from their fathers. The grandfathers and great grandfathers of not a few men in this country acquired a large portion of their wealth by ignoring their duties as trustees, and otherwise enclosing common lands once free to the poor of our towns and villages. But what could the poor helpless townsmen and villagers of a century ago or less do to prevent these usurpations? The poor were uneducated, and the laws could be enforced against them in a variety of ways as combinator or disturbers of the peace. The poor could not unite for a common interest, for they had no friends or leaders to instruct them or take their part. They were in ignorance, and their ignorance and poverty to resist was taken advantage of, and so disappeared many charities and common lands and village greens. When certain rights of commonage were destroyed by enclosures, the poor villagers lost one of their sources of income and subsistence, for they were no longer able to have free grazing for their cattle, and anon they were punished for allowing their cows, pigs, and goats to wander along the roadsides. Apart from the very poor, the middle classes too have been sufferers, and both they and the lower classes have lost by the lapse of several grants or bequests intended for educational purposes. Both in the last and in the earlier part of the present century several bequests, even in Ireland, on the part of land owners, merchants, and distinguished citizens have been set aside by an appeal to the law. Moneys intended for the advancement of science, literature, and art have met a similar fate. Look back at the noble bequest of Henry Flood, a distinguished member of our



Irish Parliament. He bequeathed his estates towards the end of the last century, their then value being £5,000, this sum being intended for establishing professorships in the University of Dublin for the study and cultivation of the Irish language. Litigation ensued, the validity of Mr. Flood's will being contested by his cousin and heir-at-law, who, after a protracted lawsuit, had his claim to the estates recognised. Thus the University of Dublin and the Irish people lost the benefit of a noble bequest. An able pamphlet was written in defence of Flood's bequest by his friend Lord Rosse, then Sir Laurence Parsons, but *jacta est alea* might have been written at the time, for the law was not, in our opinion, right, though the bequest was clear and undeniable, and the resolve of a sane and acuteminded Irishman.

Elsewhere in these columns a letter will be found from the pen of the Rev. James Graves, a distinguished native archaeologist and antiquary—and more, as also founder and fosterer of the Royal Historical and Archaeological Association of Ireland. The subject matter of two of the notes in our "Adversaria" is subjected to analysis, and as truth and instruction are the objects of the present writer, he is most willing at all times to stand corrected, and more particularly by one so well qualified to pronounce an opinion as the Rev. James Graves. Our notes on the "Hermitage of the Nore" were furnished because the materials were interesting, and, if true, were of some slight historical value; but a perusal of our slight criticism will show we expressed our doubts as to the authenticity of the materials we utilised. Respecting the ancient town of Bannow we also gave our authorities for our materials, which were suggestive to us in the light of recent foreign archaeological researches. One to whom Kilkenny and the windings of the Nore are familiar, and who personally superintended excavations on the site of the so-called "Irish Herculaneum" is well entitled to be heard; and the present writer, instead of, like many of his literary brethren, taking umbrage, is pleased in standing corrected, whether the error be little or much. Bannow and its surroundings, apart or in connection with other almost extinct places once redolent of life and importance, may again come in for notice, if time and space and the authorities, as also the "Transactions," indicated become more readily available than at present. H.

#### LABOUR AND ART.\*

THAT thing which I understand by real art is the expression by man of his pleasure in labour. I do not believe that he can be happy in his labour without expressing that happiness; and especially is this so when he is at work at anything in which he specially excels. A most kind gift is this of nature, since all men, nay, it seems all things too, must labour, so that not only does the dog take pleasure in hunting, and the horse in running, and the bird in flying, but so natural does the idea seem to us that we imagine to ourselves that the earth and the very elements rejoice in doing their appointed work; and the poets have told us of the spring meadows smiling, of the exultation of the fire, of the countless laughter of the sea. Nor until these latter days has man ever rejected this universal gift, but always, when he has not been too much perplexed, too much bound by disease or beaten by trouble, has striven to make his work at least happy. Pain he has too often found in his pleasure, and weariness in his rest, to trust to these. What matter if his happiness lie with what must be always with him—his work? If a man has work to do that he despises, that does not satisfy his natural and rightful desire for pleasure, the greater part of his life must pass unhappily and without self-respect. Consider, I beg of you, what that means, and what ruin must come of it in the end. Oh, if I could only

persuade you of this, that the chief duty of the civilised world to-day is to set about making labour happy for all, to do its utmost to minimise the amount of unhappy labour—nay, if I could only persuade some two or three of you here present—I should have made a good night's work of it. . . .

It is quite true, and very sad to say, that if anyone now-a-days wants a piece of ordinary work done by gardener, carpenter, mason, dyer, weaver, smith, what you will, he will be a lucky rarity if he get it well done. He will, on the contrary, meet on every side with evasion of plain duties, and disregard of other men's rights; yet I cannot see how the British working man is to be made to bear the whole burden of this blame, or indeed the chief part of it. I doubt if it is possible for a whole mass of men to do work to which they are driven, and in which there is no hope and no pleasure, without trying to shirk it—at any rate, shirked it always has been under such circumstances. On the other hand, I know that there are some men so right-minded that they will, in despite of irksomeness and hopelessness, drive right through their work. Such men are the salt of the earth. But must there not be something wrong with a state of society which drives these into that bitter heroism, and the most part into shirking, into the depths often of half-conscious self-contempt and degradation? Be sure there is. That the blindness and hurry of civilisation as it now is have to answer a heavy charge as to that enormous amount of pleasureless work—work that tries every muscle of the body and every atom of the brain, and which is done without pleasure and without aim—work that everybody who has to do with it tries to shuffle off in the speediest way that dread of starvation or ruin will allow him. I am as sure of one thing as that I am living and breathing, and it is this: that the dishonesty in the daily acts of life, complaints of which are in all men's mouths, and which, I can answer for it, does exist, is the natural and inevitable result of the hurry of the counting-house, we all having forgotten to take that pleasure in our daily labour for which nature cries out as its due.

I do not think my words hitherto spoken have given you any occasion to think that I mean by this either hard or rough labour. I do not pity men much for their hardships, especially if they be accidental, not necessarily attached to one class or one condition, I mean. Nor do I think that the work of the world can be carried on without rough labour, but I have seen enough of that to know that it need not be by any means degrading. To plough the earth, to cast the net, to fold the flock—these, which are rough occupations enough, and which carry with them many hardships are good enough for the best of us, certain conditions of leisure, freedom, and due wages being granted. As to the bricklayer, the mason, and the like—these would be artists, and doing not only necessary but beautiful and therefore happy work, if art were anything like what it should be. No, it is not such labour as this which we need to do away with, but the toil which makes the thousand and one things that nobody wants, which are used merely as the counters for the competitive buying and selling, falsely called commerce—I know in my heart, and not merely by my reason, that this toil cries out to be done away with. But besides that, the labour which now makes things good and necessary in themselves merely as counters for the commercial war aforesaid needs regulating and reforming. Nor can this reform be brought about save by art; and if we were only come to our right minds, and could see the necessity for making labour sweet to all men, as it is now to very few—the necessity, I repeat, less discontent, unrest, and despair at last swallow up all society. If we, then, with our eyes cleared, could but make some sacrifice of things which do us now no good, since we unjustly and uneasily possess them, then indeed I believe we should sow the seed of a happiness which the world has not yet known, of a rest and

content which would make it what I cannot help thinking it was meant to be, and with that seed would be sown also the seed of real art, the expression of man's happiness in his labour. An art made by the people, and for the people, as a happiness of the maker and the user. That is the only real art there is, the only art which will be an instrument to the progress of the world, and not a hindrance.

I believe there are two virtues much needed in modern life, if it is ever to become sweet; and I am quite sure they are absolutely necessary in the sowing the seed of an art which is to be made by the people and for the people, as a happiness for the maker and the user. These virtues are honesty and simplicity of life. To make my meaning clearer I will name the opposing vice of the second of these—luxury—to art. Also I mean by honesty, the careful and eager giving his due to every man, the determination not to gain by any man's loss, which in my experience is not a common virtue. But note how the practice of either of these virtues will make the other easier to us. For if our wants are few, we shall have but little chance of being driven by our wants into injustice; and if we are fixed into the principle of giving every man his due, how can our self-respect bear that we should give too much to ourselves? And in art, and in that preparation for it without which no art that is stable or worthy can be, the raising, namely, of those classes which have heretofore been degraded, the practice of these virtues would make a new world of it. For if you be rich, your simplicity of life will both go towards soothing over the dreadful contrast between waste and want, which is the great horror of civilised countries, and will also give an example and standard of dignified life to those classes which you desire to raise, who, as it is, indeed, being like enough to rich people, are given both to envy and to imitate the idleness and waste that the possession of much money produces. Nay, and apart from the morality of the matter, which I am forced to speak to you of, let me tell you that though simplicity in art may be costly as well as uncouth, at least it is not wasteful, and nothing is more destructive to art than the want of it. I have never been into any rich man's house which would not have looked the better for having a bonfire made outside of it of nine-tenths of all that it held. Indeed, our sacrifice on the side of luxury will, it seems to me, be little or nothing, for as far as I can make out what people usually mean by it, it is a gathering of possessions which are but sheer vexations to the owner, or a chain of pompous circumstance which checks and annoys the rich man at every step. Yes, luxury cannot exist without slavery of some kind or other, and its abolition will be blessed like the abolition of other slaveries, by the freeing both of the slaves and their masters. Lastly, if, besides attaining to simplicity of life, we attain also to the love of justice, then will all things be ready for the new spring-time of the arts. For those of us that are employers of labour, how can we bear to give any man less money than he can decently live on, less leisure than his education and self-respect demand; or those of us who are workmen, how can we bear to fail in the contract we have undertaken, or to make it necessary for a foreman to go up and down spying out our mean tricks and evasions; or we the shopkeepers, can we endure to lie so as to shuffle off our losses on to someone else's shoulders; or we the public, how can we bear to pay a price for an article which will help to trouble one man, to ruin another, and to starve a third? Or, still more, I think, how can we bear to use, how can we enjoy something which has been a pain and a grief for the maker to make?

THE MASONIC HALL, LIMERICK.—The liquidators of the Masonic Hall Company, Limerick, have sold the splendid pile of buildings situated in Glentworth-street, for £1,000. The purchasers (in trust for an educational institution) are the Revs. Benjamin Jacob and J. F. Gregg, and Messrs. Robert Hunt and William Boyd.

\* Abstract of address delivered by Mr. William Morris to students of Birmingham Society of Arts and School of Design.



### VILLA, GROSVENOR-ROAD, RATHGAR.

OUR illustration with present issue is a perspective view of a villa residence just completed from the designs of Mr. George P. Beater, of Lower Sackville-street. Messrs. J. and W. Beckett, South King-street, were the contractors.

### PROVINCIAL SANITARY MATTERS.

**ATHY.**—At a meeting of the commissioners of this town, there was a discussion respecting the "loud complaints" made by several of the inhabitants of the bad sanitary condition of the town, and particularly in regard to the cleansing, or rather non-cleansing, of the streets. A member said:—"There was a plan adopted some time ago of sending the bell-man round the town, to caution the householders to clean the flag-ways; that very useful expedient seems to have got into disuse. The consequence is that the streets are not now kept in as cleanly a condition as they were heretofore." Another member and a J.P. said:—"His name had been mixed up with these statements, and he had been pointedly alluded to as not complying with the requirements of the sanitary act, whereas the reverse was the case. His agent informed him that a sum of over £40 had been expended in carrying out the provisions of the act, and were it not for the unfortunate epidemic of small pox breaking out in the town, all the requirements would have been long since complied with." It was also denied that the public sewers were neglected, as, with the exception of a few small ones, the commissioners have constructed all the main sewers of the town." For all that there appears to have been tangible grounds for preferring complaints in regard to the dirty condition of some of the streets.

**NAAS.**—In this town, as well as in the preceding one, the state of the streets, at a meeting of the town commissioners, led to "loud complaints;" the chairman alluded to their condition and said:—"For the last three weeks heaps of mud had been allowed to accumulate in all directions, and particularly in the centre of the Main-street, close to the council. Ladies and gentlemen made severe complaints of this state of things, and something ought to be done to remedy it."

### THE CANAL V. THE VARTRY WATER.

THE general water supply of Dublin is a question of vital importance, as the Vartry water is the chief source, though not the only one, on which the city is at present dependent. The purity of the Vartry water is another question, and this matter has been alluded to incidentally in "Adversaria" in another portion of our pages. Mr. Gatchell, of Henry-street, a representative of an old and respectable firm in the ironmongery trade and its kindred branches, has been contending for some time back that the Vartry water is anything but pure. He maintains that the death-rate has gone on increasing year by year since the canal water has generally been discarded by the adoption of the Vartry supply. As far as Mr. Gatchell furnishes facts respecting the injurious chemical effects of the water upon the pipes and other tubes and vessels used in its service, Mr. Gatchell's statements are worthy of consideration, as his business has afforded him good opportunities for observation. If the death-rate has greatly increased so has the population, and sanitary work and supervision have not kept pace with the urgent wants of the city's population. Our house drainage and public sewerage is most defective, our street scavenging and cleansing operations are woefully deficient, whenever not entirely neglected, and every year is only adding to the utter abomination that characterises the state of a very large portion of the tumble-down house property of Dublin, north and south, and its surroundings. Let these and other obvious matters be

taken into consideration. We are not sticklers and hard-and-fast defenders of the purity of the Vartry water, but, all things weighed, it is far preferable to the canal water as we know it either in the immediate vicinity of the city or for several miles outside of it. Our co-labourer in our "Adversaria" column has noticed the pollution to which the canals are, and have always been subject to, and others might be mentioned of a most abominable kind. Let the fact be known that our canals in several places along their source are receptacles for the outfall of house drains and manufactory refuse. The Vartry is not altogether free from pollution or new dangers now or in course of time, and a more vigilant supervision of the source of our chief supply is absolutely necessary. We would need very cogent facts indeed to convince us that the high death-rate of Dublin is owing to the use of the Vartry water. It is possible that Dublin will yet have to go further afield for its chief supply; but, before that event takes place, a series of unerring and exhaustive analyses, extending over a considerable space of time, will need to be carried out respecting the exact properties and effects of the water when continually used for drinking and domestic purposes. In the meantime also it will be necessary to further safeguard from pollution the source of our supply, not alone by constant inspection but by methods of filtration and other cleansing processes which experiments guided by science may present for practical adoption.

### THE SANITARY STATE OF DUBLIN.

A SECOND report by Drs. Cameron and Mapother, dealing with the causes of disease and the death-rate of the city, has been addressed to and adopted by the Corporation. The present report makes several useful suggestions, which if embodied in practical work would be valuable. The theories put forward in the report are, in our opinion, to a great extent fallacious for reasons already stated in these columns, as also in the pamphlet issued in relation to the first report by the Dublin Sanitary Association. The Chairman of the Public Health Committee of the Corporation adopts almost in their entirety the theories of their medical officers of health, admitting at the same time that the city is "capable of a very large sanitary improvement." Indeed it is, and why was not the admission long since made, as also the now specified admitted facts, respecting the bad house drainage, sewerage, wrecked house property and surroundings, and last, though not least, the scandalously imperfect and neglected street scavenging? This aside, we would be glad to hope, and see the good points of Drs. Cameron and Mapother's report acted upon, and the work, the very necessary work indicated by the medical officers in their report, executed. We fear, however, that this report, like previous ones, will become little more than a dead letter, and when the effect of the present splash of sanitary talk cools down the same dead level of previous inaction will be observable. The Corporation have given the report of the Sanitary Association the "go by," for reasons that are obvious. In justice to the association, whose action we have not always endorsed, we consider their report in review of the one first issued by the medical officers of the Corporation an impartial review, as far as we had time to go over it. The argument and figures put forward appear to us sound and reliable, and in some particulars are very important points; the statement of the Sanitary Association clearly upsets those put forward on the part of the Corporation.

We have not time or space in this issue to quote or enter into details. Whether an inquiry on the part of the Government, and earnestly called for by the Sanitary Association would result in the benefits anticipated, may be an open question. Such an inquiry would certainly lead to good, as it would bring to light many facts concerning the condition of the city, not accessible to the

general public. It would also have the effect of showing whether the civic authorities have performed or neglected their duties, and if the excuses continually put forward on the part of the local authority are admissible. It was not the want of funds for sanitary work that brought the city down to its present deplorable unsanitary state, but a continuous neglect extending over years, and a waste of money on every project but the right one. The improvement and sanitary work urgently called for was talked about only to be postponed, and when attempted it was in spurts, and executed in bits and scraps. The sanitary projects and resolutions were many, but the floaters and promoters and their agents, legal and otherwise, got the cheques, and the sanitary improvement of the city was checkmated.

### SEWAGE TREATMENT AT NEWBRIDGE BARRACKS.

THE following is from a report presented by Mr. John H. Brett, C.E. to the Naas Board of Guardians *in re* the drainage of Naas:—

All the sewage of Newbridge barracks is subjected to a combined process of filtration and precipitation in large vaults, near the Liffey bank. Solid and suspended matters carried into the vaults are deposited therein as sludge, while the liquid which held them flows into the river. The sludge is carried away periodically, after being mixed with some absorbing and deodorising material, usually turf-mould. The sewage so treated, though it includes surface drainage from rainfall, is in general highly concentrated. It is derived from an average population of 850 persons, and about 510 horses. There are 41 closets, besides other necessities—kitchens, sculleries, wash-houses, stables, &c.—all contributing sewage. The average consumption of water is about 600 gallons daily. The area contributing surface drainage is about 36 acres, from which about 1,000,000 gallons might be expected to run off daily during extraordinarily wet weather. The vaults are strongly constructed of birch wood, backed with concrete, and are provided with man-holes for clearing out sludge, and for renewing filter material. The arrangement of intercepting tanks and filters is in duplicate, so that when one set of vaults is being cleaned out the other may be kept in use. Each intercepting tank is 30 ft. long, 6 ft. wide, and 7 ft. high, separated from its corresponding filter chamber by a wall, through which there is a large opening at floor level. The filter chambers are each 6 ft. square and 7 ft. high. In these chambers are iron gratings placed about 2 ft. 3 in. over floor level, and on the gratings a layer of gravel 18 in. deep. The outlet for filtered liquid is about 4 ft. 3 in. over floor. The wall separating one set of vaults from the other encloses a drain contrived to discharge storm overflows. The outlets to this drain are placed at 5 ft. over floor level, and have strainers to prevent the passage of bulky lumps. Sewage being admitted into the vaults must accumulate to a depth of 4 ft. 3 in. before any outflow of filtered liquid can take place; and if it should accumulate to the depth of 5 ft. by reason of a clogging of the filter, an overcharge from heavy rainfall, or other causes, it will begin to flow out unfiltered, but partially strained. It will be understood that filtration proceeds upwards, the solids being left beneath the gratings which support the gravel. The cost of construction of the vaults was about £300. They were carefully designed, and appear to be well built. The removal of sludge is done by a contractor, at an annual expense of about £35. The cleaning out is done at intervals of about twenty-four weeks or so, and I believe without causing nuisance. The contrivance above described cannot perfectly defecate sewage, nor make it inoffensive and innocuous. The affluent remains a foul liquid still, but not so foul as to cause much nuisance. If the affluent could be applied to irrigate land properly prepared, perhaps the highest degree of purification might be attained. There is no known process of treating sewage so effective as irrigation, and as far as I can learn no complaint has been made regarding insufficiency of filtration in this case.

**SUFFOCATED IN A LIMEKILN.**—An inquest was held at Monasterevan on Monday, on the body of a man, a stranger to the locality, found in a limekiln at Mount Rice on the previous Saturday morning. The man, who was apparently a stone-cutter on tramp, had evidently sought shelter for the night in the lime-kiln, and was suffocated by the fumes. The jury found a verdict of death from suffocation.



## THE PHONOGRAPH.\*

IN opening the subject of his lecture Prof. Barrett pointed out the fact that periods of discovery and invention appeared to alternate with each other. The present time is one of unparalleled activity in invention, each scientific marvel being succeeded by a still greater. Of these he might mention the electric telephone, which was followed by the phonograph, and next by Edison's carbon telephone; then came the tasimeter, and, finally, the development of the electric light. Beside all these, electric telegraphy has been making rapid progress, messages being now automatically sent and recorded as fast as the words can be spoken. Further, the carrying power of lines has not only been doubled—by the duplex system—but in America, and on a smaller scale in England, it has been quadrupled, so that four messages can simultaneously be sent along one wire. By means of a recent invention—Cowper's telegraphic pen—our very handwriting is made to record itself at any distant place. It was these attempts to improve electric telegraphy which independently led several investigators to the discovery of the telephone. Varley, La Cour, Elisha Gray, and even Graham Bell were all led to the discovery of their telephones by the endeavour to obtain a multiple transmission of messages, and these again are connected with the phonograph, as it was the vibrating disc of the telephone which led Edison to the discovery of the phonograph.

Edison's phonograph is not an electrical but simply a mechanical instrument. Speech itself is merely a mechanical act, and, as such, can be automatically recorded, electrically transmitted, mechanically reproduced, and artificially imitated. The simplest musical notes are produced by simple to-and-fro motion of the air. This to-and-fro motion varies in its speed according to the pitch of the note; it varies in its form of motion according to its simple or its compound nature. Most musical notes, with the exception of those produced by tuning-forks, are due, not to one tone only, but to a number of tones—the one which we chiefly hear being called the prime tone, and the others the partial tones. These are less distinctly heard, but are quite recognisable by a trained ear, or by means of resonators. These are jars which reinforce one particular note, and that one only. By this means the less audible notes can be picked out, and each one being strengthened by its own particular resonator, the series of tones which form the note of a piano or a violin can be recognised. Researches, based on this fact of so-called "sympathetic vibration," have been made by Helmholtz, Donders, and others, and the series of partial tones, which, with the prime tone, form any given note, has been found. The intermixture of these various tones gives rise to a more or less complex form of sound-wave, but still more complex are the waves which are set in motion by the voice. The same method of research has proved that the sounds uttered by the voice are composed of a series of musical tones, the partials varying for each sound. In this way vowel and other sounds have not only been analysed, but they have been reproduced or built up by sounding together the various tones which were thus discovered to form the words we utter. Speech, therefore, gives rise to very complex vibrations of the air around; some of the more simple vibrations, such as those produced by vowel sounds can be graphically represented by the method devised by M. König. A rotating mirror is placed behind a flame, and reveals, by the change of form in the flame, the varying impulses given to the air by the utterance of the vowels. The vowel sounds are produced by a sustained sound, consonants by a broken sound.

Sedley Taylor's phonoscope was next shown, wherein the voice is made to vary the colours assumed by a thin film of soap.

Sand was next scattered on a membrane stretched over a box, and assumed different forms according to the sound uttered into the box, showing the vibration of the membrane, and also that it differs for different sounds. If a point could be attached to this membrane the motion might be written down on blackened glass, and this has been accomplished by Scott's phonantograph, and still more perfectly by the logograph, an instrument invented by Mr. Barlow. Tracings of words made by its means were shown on the screen. In these various ways speech has been recorded, many means have also been devised for its reproduction, and it was shown that the reproduction of a musical note was a comparatively simple matter. Attempts have also been made from the time of Friar Bacon, in the 13th century, onwards to imitate the organs of speech so as to make artificial speaking machines. Some of these have been partially successful, the vowels and other simple sounds being produced by sliding tubes or by reeds. The most perfect of these is that devised by Faber, which utters whole sentences slowly but quite distinctly. A practical application of a method for artificially producing speech has been made, so that, by the insertion of reeds and tubes, those who have lost their natural vocal chords are enabled to articulate.

The most perfect instrument for reproducing speech, and that from the records it has itself previously made, is the phonograph. The wonder is that a heavy iron plate should be able to respond to the feeble and complex vibrations set up by the voice. That this is possible was shown by a little instrument, which the Professor called a sound mill, which was made to rotate simply by the voice. If, then, a point is attached to this vibrating diaphragm, it will make an impression upon a soft body placed underneath it, and by drawing this along a series of marks will be made. This is the principle of the phonograph, where a style is attached to the membrane, and a rotating cylinder continually brings fresh portions of its tinfoil covering underneath. Impressions or indentations are thus made upon the foil by the style, which is set in movement by the iron diaphragm. These indentations, on being again placed under the style, cause it to be moved up and down, and thus to vibrate the disc, which again sets the air in a motion which corresponds exactly to the motion first set up by the voice. It is the simplicity as much as the ingenuity of this instrument which has excited the wonder of so many scientific men. Many indeed—as, for example, the members of the French Academy—were for a long time incredulous as to the powers of the machine, asserting that the sounds were all due to ventriloquism.

The lecturer next referred to hand and clockwork phonographs: with the latter the reproduction of music is wonderfully distinct, and by varying the speed of rotation of the cylinder the music can be made, while all its notes remain the same relatively to one another an octave higher or lower. The great use of the phonograph has been in the confirmation it has given to Helmholtz's theory of vowel sounds. Vowels are now proved to be produced by the sound of one chief or prime tone, with several higher or partial tones. These partial tones differ for different vowels, and the analysis of curves made by vowels on the tinfoil has enabled Professors Fleming, Jeubrin, and Ewing to recognise the special notes which compose each vowel. Quite recently Mr. Preece and Mr. Stroh have constructed an apparatus which they call an automatic phonograph, whereby the actual vowel sounds are produced by the simple turning of a handle. A number of discs, cut to represent the curves made by each vowel, impinge upon a series of toothed wheels. The sound made by the vibration of the discs against these wheels as they are revolved is transferred to the disc of a phonograph, and then the different vowels can be clearly heard. The result of reversing the motion of the phonograph was next illustrated, as well as the curious fact that neither

vowels nor consonants are changed in character by turning the phonograph backwards.

The Professor concluded by stating that the consideration of the marvels which have been revealed and accomplished by science must not hide from us the fact that these are not the chief benefits she confers upon mankind. Her greatest use is to be found in the habits of thought and the love of truth she inculcates.

## RIVER PURIFICATION AND SEWAGE DISPOSAL.

THE questions of the pollution of rivers and the utilisation of sewage have often been discussed in these pages. We have always been advocates for irrigation under suitable conditions, but in every instance we have condemned the practice of pouring our sewage into rivers or the sea in an undiluted or semi-solid shape. Some years may yet probably elapse before the sewage of our cities and towns will prove highly profitable, however treated, either as a manure or for commercial uses. In the interests of public health alone it is important that our rivers should be kept pure, and that our sewage matter should be kept entirely from flowing into them, unless when an efficient filtering process renders the effluent water perfectly harmless. It is scarcely necessary again to draw attention to the condition of the Liffey; but a few facts concerning the towns on the Upper Thames and other places which pollute water-courses with their domestic and manufacturing sewage, will be of importance. These indicated districts are face to face with difficulties grown up from a thoughtless disregard of the value of the rivers and how to make an immediate provision for remedying the many evils resulting from direct drainage into the sources of the water supplies of large populations. Opportunely, then, the Rivers Purification Association, by inviting the mayors and corporations of towns which need sanitary action to visit and inspect the operations of purifying rivers, is doing good service by assisting to carry out the intentions of recent parliamentary action. One of the rivers dealt with by this association is the Sherborne, in Warwickshire; another is the Lea, into which, just above Hoddesden and Ware, the sewage of Hertford would flow if the river was allowed to be the sewer. The sewage of the town of Coventry, which formerly polluted the Sherborne, is a particularly difficult mass to deal with, for Coventry drains into its sewers not only the domestic sewage, but also vast quantities of manufacturing "waste" from dye-works, textile works, and from metal works, the refuse being vegetable, mineral, and chemical. At Hertford, on the contrary, the sewage is exclusively domestic, washed down at the rate of a million gallons a-day. At Coventry the sewage is intercepted a little way from the town and poured into a tank, where it is mixed with a solution of cheap chemicals, which precipitate the solids as the whole mass pours over weirs from tanks into other tanks, becoming purer as it passes on. There are reserve tanks in order to permit of one set being run off for the clearing out of the "sludge" for drying, to be supplied to farmers as manure. The effluent runs off upon land through which it filters, and it finally re-enters the Sherborne as pure as the Thames at Henley, while at its first entry into the tanks it is as filthy as the Irwell at Manchester, the Aire at Leeds, or any other water-course which receives manufacturing pollution. Below Coventry fish have reappeared, and the riparian owners are so well satisfied that there has been no renewal of the costly lawsuits to which the town was formerly subject in consequence of the river pollution. At Hertford the association had to use the appliance adopted by the town in its own attempt to utilise the sewage with the idea of making money out of it. There was a failure in this attempt, the farmers having yet to be educated to a faith in home-produced fertilisers. The sewage of Hertford is carried down by a plentiful supply of water

\* By Professor Barrett. Delivered on the 10th inst. at Royal Dublin Society.



to works just outside the town, in the valley of the Lea. The tanks and works were designed by Mr. Grindle, the borough surveyor. The sewage is treated as it enters the tanks with a mixture of sulphate of alumina, sulphate of iron, and lime, these substances forming the precipitating materials of the process invented by Mr. H. Robinson and Mr. J. C. Melliss, civil engineers. The mass when it is received is a very unpleasant-looking mass; but after passing through the precipitating tanks and through a filtering bed, which has to be used because there is no land to be obtained for filtering, the effluent water is discharged into a "cut" for conveyance to the Lea. This water was so pure on the occasion of a visit by the town representatives, that when a glass of river water was placed by the side of a glass of the effluent, the mayor selected the latter as the clearer. Shoals of fish are found in the "cut." Professor Wanklyn pronounced the effluent to be exceedingly good, and the best effluent he had seen. The Lea Conservance of the Rivers Commission have expressed themselves satisfied, and the towns of Hertford and Coventry are also satisfied. The dried product has a theoretical value, according to chemists, of about 27s. a ton; but as the farmers do not care about creating a demand for the fertiliser, it does not fetch 6s. a ton. It is expected that as soon as its fertilising value becomes known to a class proverbially slow to receive new notions, town sewage will be of higher value; but that day is not to be expected yet. The system at Coventry and Hertford appears to be very successful, and has stood the severe test of being worked out practically for lengthened periods.

## CORRESPONDENCE.

## RE "ADVERSARIA HIBERNICA."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The series of "Adversaria Hibernica," which has for some time appeared in the IRISH BUILDER, is too interesting to allow the writer to be misled by too great dependence on the authorities from which he makes his selections. The "Hermitage on the Nore" is simply an impossibility between Ballyragget and Kilkenny, and never had any existence except in the brain of the writer of the Essays, who sought to give them interest by this romantic introduction. There is an anchorite's cell on an island in the Nore, two miles above Ballyragget, but it never was occupied by a modern Eremité.

Again, as to Bannow and its former existence as a town, the name of the "Irish Herculaneum" is entirely a misnomer. That a considerable seaport town stood here from an early date, and that it has ceased to exist, together with the deep-sea channel on whose shores it was built, and which in the early part of the thirteenth century gave shelter to William Earl Marechal—when, being in peril from a storm on his voyage to Ireland, he made the "vow" that if saved from the perils of the sea he would found a monastery near the port of safety, and hence the abbey of the Irish Tintern, or De Voto—is well known. But that the town is buried beneath sand drifts, is totally unfounded. The ruined Norman church of Bannow is not, and never has been, covered with sand. The famous "chimney," on which the Members for Bannow were elected, is not the chimney of the buried town hall; it is a portion of a fallen chimney which lies on its side in the churchyard of Bannow; no part of it is covered. The foundations of streets and houses are indeed there. Aided by a party of labourers given by Captain Boyse, of Bannow, I myself excavated several, some few years ago, but the superstructures are all gone, and very little of interest rewards the explorer. We found nothing but specimens of the heavy slates with which the houses had been roofed, and even the "middens" at the back doors yielded no relics of any kind.

If the subject is worth continuing, I would

refer the writer of "Adversaria" to a series of papers on Bannow and its "buried" town, printed in the Transactions of the Kilkenny Archaeological Society for the year 1850.

JAMES GRAVES.

March 3rd, 1879.

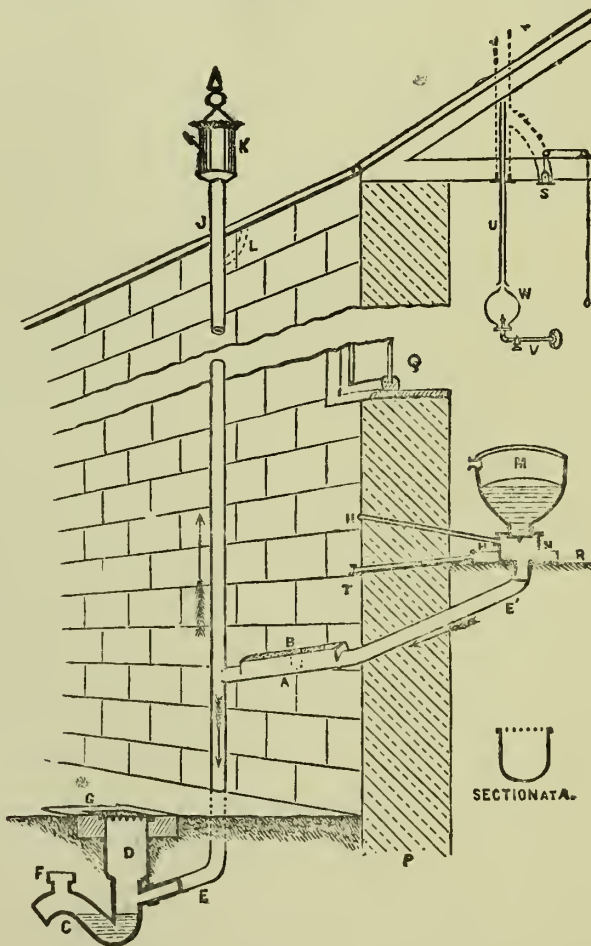
[The subject-matter of the above letter is referred to elsewhere in our "Adversaria" column.—ED. I. B.]

## A NEW SOLUTION OF THE SEWAGE GAS PROBLEM.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In November, 1874, I published a sketch showing a style of fitting up water-closets so as to ensure greater safety to the inmates than was usually the case, should anything go wrong with the water-closet pipes. My idea then was that by putting on a ventilating trap at the bottom of the soil pipe, the sewer and drain gas was locked off, and the soil pipe ventilated by itself. That sketch was open to improvement, and in a few months was developed into my patent of April, 1875, which patent, according to page

by a perusal, about eighteen months or so ago, of the article on "Sanitary Science" in Blackie's Encyclopedia, by Dr. Robert Bell, F.F.P.S., Glasgow. I never, however, worked the idea out thoroughly until last month; but having once done so, I believe the plan to be not only very good, but easily carried out in practice, and especially in new houses. The intention in 1874 was to lock off the drain from the soil pipe and water-closet; but the intention now is to keep out, as far as possible, any gas that may be bred in even the soil pipe itself from the water-closet. This is effected as shown in sketch. c is one of my cascade-action\* ventilating drain traps; n is the fresh-air entrance channel to the trap and soil pipe e. This soil pipe e being surmounted by one of my 4-in. induced-current ventilators k, a constant current of air is expected, and will generally be found to be passing up the soil pipe. This up-current will tend to draw in air from the open channel at a, at the end nearest the soil pipe; while, if an opening existed in the branch soil pipe e, no bad air from the upright soil pipe would get access to the house, but only through the short portion of branch soil pipe, about 2 ft.



408 of Mr. Baldwin Latham's "Sanitary Engineering," is the same system as that afterwards mentioned in the model bye-laws of the Local Government Board. It is difficult to arrive at perfection, however, and all the above systems left room for improvement. As another contribution towards that improvement, I beg to show a sketch of a style of fitting up a water-closet, either with or without a lead siphon trap,\* which for combined safety, efficiency, and simplicity is, I think, in advance of any plan yet published. The novelty or speciality in it—the open pipe a in the sketch—was suggested to me

long or so, fresh air pouring in from the end of a nearest the water-closet. Again, owing to the ventilating pipe n, no bad air could gather in the branch soil pipe. B is a swinging valve that might be put in, if wished, of tinned copper; but I consider it unnecessary. m is a Bramah valve-closet, but other closets may be used; n is the lead safe, with safe pipe t, carried outside, and with hinged valve at its outlet end; r is the level of the floor; q is the water-closet window; s is a ventilating shaft for the water-closet enclosure, which may be surmounted by a ventilator. The gas globe w and ventilating

\* I have still a strong fancy for the retention of the siphon trap, and Mr. James Mactear, managing partner of St. Rollox Chemical Works, who experimented with water traps, told me that he easily got the gases to pass through the water, but failed in all his attempts to get ferment germs to pass through. He hopes yet to manage the latter, but his failures hitherto show the value of water in keeping back germs and disease-breeders from the house or inner side of a water trap. The molecules of the gases may pass freely through between the molecules of the water, and the more readily in imperfectly ventilated pipes; but the germs, being many times larger, cannot get through in the same way, I consider.

\* Regarding the value of this cascade-action (this term was first applied to it by Professor James Thomson, LL.D., F.R.S., Professor of Civil Engineering and Mechanics in the University of Glasgow) in a drain trap, Mr. John Honeyman, F.R.I.B.A., architect, Glasgow, wrote to me a few days ago as follows:—"Our conversation yesterday made clear to me the advantage of the vertical drop into the trap which you provide. I regard it as a distinct improvement upon the form of my trap, and will use your trap in preference, where circumstances permit. I am not aware that any other improvement upon my old trap of 1855 has been made."



pipe U are more necessary for rooms than w.-c.s., but put in here merely to illustrate an idea. In some cases the pipe U might be allowed to blow off, as shown; in other cases it would be better to go out as a small tube by itself in order to keep up the heat, and so prevent tendency to down draught. Only one water-closet is shown leading into the upright soil-pipe, but several may be led into it, as in flatted houses or large private houses, and by carrying each branch soil-pipe, say, 3 ft. or so along the wall, and leaving about 2 ft. of it open at the top, as shown in section A of the sketch, then each water-closet is locked off from the soil-pipe, so far as the passage back of sewage gas into it is concerned, without interfering with the free passage outwards of the water and soil. J is the soil pipe continued upwards above the roof, full diameter. L is a rain-water pipe, which in some cases may, with perfect propriety, be led into it, especially if no windows are near. Its worst effect is to tend to supply the ventilator with air, instead of the air being forced to come from lower down. It is only ticked in as a suggestion, however, and people can please themselves. The top of the open channel pipe at A is covered with a perforated lead, zinc, or iron grating, as shown at "section at A," which, while providing for perfectly free ventilation, at same time prevents snow or anything falling into and choking the channel. This grating also prevents the passage of soil down the pipe being seen by any person from a window upon a higher level. Dr. J. B. Russell, the able medical officer of health for Glasgow, to whom I have shown this drawing, considers this new plan "as near perfection as can be." Some time ago, in conversing upon sanitary matters, he observed to me that what he wished with water-closets was that the soil should go slick down the soil pipe, and as far off as possible with one pull of the w.c. handle; the difficulty with me, however, was to at the same time prevent the sewage gas from coming "slick up," but that objection is now removed. The system, which can also be used for waste-pipes, is open to the public to be freely used without any charge for royalty, and I shall be glad to hear of its adoption anywhere, and in the meantime will be pleased to learn the opinion of architects, practical sanitarians, or others interested in sanitary progress. W. P. BUCHAN.

Glasgow, 6th March, 1879.

#### COUNTRY ROADS AND ROAD CONTRACTORS.

THE County Surveyor's report read at the opening of the Queen's County Spring Assizes at Maryborough, on the 7th inst., contains some passages worth reproduction in these columns, in respect to ways and methods adopted for keeping the roads in order and of other ways adopted by contractors for "scamping" their work. The race of "Jerry" road-makers and menders is enlarging as well as those of the building order, and they are becoming adepts in how not to perform their contracts, as well as executing their work badly. But what is to be expected from the specimens of animated nature who are found tendering in sundry places in town and country, with horses as acute as themselves, and who resent heavy burdens, and carts which often do the double duty of stopping gaps and entries to the farm when empty, and when filled with mud or road dirt drop it gradually through the bottom or tail-board on the high road from whence it came? The County Surveyor reports:—

In September, under a Grand Jury resolution, I furnished your solicitor with a list of twenty contractors, who had little, if any, preparation made, and, as I believe, in consequence, only one contractor in the county failed altogether to provide some materials for the maintenance of his road. Owing to attempts at fraud last year, by removal of measured materials to be measured again on another road, I found it necessary to enforce rigidly the provision of the specification as to time of measure-

ment, and I regret to say that in twenty-one contracts measurements could not be made without opening a wide door for fraud. On these, however, I had estimates made, and as a transition step to a more rigid practice, I asked and obtained at sessions an approval of my giving a fair consideration to such estimates in each case, so as to avoid treating for this year such failure as an absolute and entire default. This I have done to the best of my ability, but I take this opportunity of informing all contractors that for the future any materials not ready for measurement at the proper time will be altogether ignored. I regret to say that on some roads, there has been great neglect—an absence of attention to repairs and a want of materials supplied. An idea seems to prevail among contractors that they are limited to the quantity of materials specified, whereas the limitation is that unless shall be given, it being provided in the specification (if they would but read it) that "the supply for measurement shall be irrespective of those required for maintenance," and again, under the head of maintenance, "every weak or hollow place shall be repaired with metalling, which shall be supplied by the contractor in addition to the materials specified for measurement." In determining the latter I usually take half the price allowed as the measure of the quantities, considering the other half as required to cover repairs, dressing, contingencies, and profits; so that ample margin is left, and neglectful contractors are without excuse. As a necessary result it of course will follow that next session, in the strict enforcement of the contract to prevent fraud, any contractor who fails in timely preparation of material will thereby disentitle himself to one-half of the year's pay, and the amount to be certified will be limited to the other half only.

In the auditor's report (Mr. G. W. Finlay) we find the annexed observations in reference to the above subject:—

The accounts were made up and presented for audit in a satisfactory manner, although it would have been desirable if in every instance the certificate of the county surveyor on which payment was made had been preserved and produced. This being, however, the first audit of the treasurers' accounts under the new Order in Council, it was not anticipated that those documents would in every instance be required, and I have no doubt that they will in future be carefully preserved for production at the audits. The practice which prevails so extensively in this county of making payments to contractors from time to time during the progress of works, increases considerably the number of items to be audited, and the work of the county surveyor and his deputies, the county treasurer, and the bank. The existing practice is represented as being advantageous to the county, as it enables a large number of persons without means to compete for contracts, who would not otherwise tender, as they could not remain out of their money until the completion of the work. However this may be, I have thought it advisable to invite the attention of the Grand Jury to the matter, with a view to their determining whether they could with propriety, in exercising their authority under the 128th section of the Act 6 & 7 Wm. IV., cap. 116, effect a reduction in the number of cases in which it would be desirable that advances should be made to the contractors during the progress of the works. A very large part of the baronial expenditure on works is in respect of works undertaken and executed by the county surveyor, for the execution whereof no tenders were received, and where, in some cases, the contractor failed to proceed with the work. For instance, in the Barony of Maryborough East one-third, and in the Baronies Portmahinch and Stradhally two-thirds of the entire payments following summer assizes were made in respect of such works. The payments in these cases are made at frequent short intervals by the treasurer to the workmen and labourers employed on the spot where the works are being executed, for which service a charge of 9d. in the pound is made by the treasurer. This charge cannot be considered unreasonable under the circumstances, but it would appear to be desirable that, as far as practicable, this class of cases should be reduced to a minimum, with, if for no other reason, a view to diminishing this extra expenditure.

The following resolution was proposed and carried in reference to the road contractors:—

"The Grand Jury request the magistrates at adjourned sessions to be more careful in investigating the solvency of persons presenting themselves as contractors and securities for contractors; and also to inquire carefully whether contractors are undertaking more contracts than they can perform satisfactorily."

The encouragement of honest and open

competition on the part of contractors is certainly desirable, and some small and trustworthy men may often present themselves, who though capable of undertaking a limited contract if given to them, would not be able to carry out a large contract with the humble plant they possess. Advances to contractors during the process of works is common over the British Islands in the case of substantial men as well as those of very small means. The county surveyor ought to be able to tell, and doubtless he can, whether a certain tender is sufficient to remunerate a certain contractor, for it will often be found drowning men catch at straws, and others deeply involved send in tenders at such a low price that it would be impossible for them to honestly execute the work specified for the sum. The consequence is the money is drawn, and often two-thirds of the sum before the contract is half finished, and what is done, performed in a "scamping" manner. In such cases the county surveyor or some other contractor through him is certain to have to finish the work at a greatly increased cost to the county. The frauds perpetrated by road contractors and their foremen in respect to removing measured materials from one place to another and securing thereby another measurement in their favour is an old trick, and is still often practised in town and country where there is no proper supervision over the progress of the work. Without proper checks, frauds will continue, and scamped work will be manifest. If examples by fine and imprisonment were made of a few of our country road contractors,—aye, and of some of our city ones, too—their punishment would have a salutary effect. Why have we so many badly-made and repaired roads, so much "scamped" building and drainage work? It is because several of our public and local board officials do not perform their duties honestly, or otherwise it is performed on a perfunctory manner. Again, through the dishonesty or jobbery of committees and officials, the tenders of honest contractors are ignored, and the contracts given to relatives and friends in accordance with foregone conclusions arrived at often before the advertisements are issued asking for tenders. We might say a good deal more anent the abuses under notice, but perhaps what we have written may be digested by those whom it may concern, until another opportunity presents itself to us for saying more.

#### THE MOORE CENTENARY.

At a meeting of the Centenary Committee, held on Tuesday, at the Mansion House, under the presidency of Dr. R. R. Madden, M.R.I.A., a very interesting letter was read from Mr. Samuel Carter Hall, the husband of Mrs. S. C. Hall, both well known by their writings in relation to Ireland, and in other literary and art directions. Professor Hennessy said that, together with the letter, Mr. Hall had sent some very interesting relics of Moore, and their thanks were due to him for his kindness and interest in connection with the centenary celebration.

After a lengthened discussion, owing to an element of unpleasantness being introduced by Professor Kavanagh in respect to a matter which never should be alluded to at a meeting in which all, irrespective of sect or party, were supposed to be honestly exerting themselves to worthily honour Moore, the following resolution, proposed by Professor Hennessy and seconded by Mr. S. N. Elrington, was carried:—

"That the marked thanks of the committee be given to Mr. and Mrs. S. C. Hall, for the kind letter received from Mr. Hall, and the offer of the various relics connected with Moore, which Mr. and Mrs. Hall have kindly promised to place at the disposal of the committee, and that the committee gratefully accept this offer."

We would conjure the celebration committee to resist to the utmost all and every attempt made to introduce mere party, political, and religious topics, so that the celebration may be truly all-embracing and national.



### THE ROYAL DUBLIN SOCIETY.

At a stated general meeting of the society held since our last issue, under the presidency of the Rev. the Provost of Trinity College, the following report was read by Mr. G. Johnston Stoney (hon. sec.):—

"At the last stated general meeting of the society, held on the 14th of November, 1878, the council reported the proposals which had been made by the Government relative to carrying out propositions of the Government of March 5, 1877, relating to agriculture, and the correspondence which ensued was placed before the society at a general meeting held on the 20th of February. In accordance with a resolution passed on that occasion a letter has been written to his Grace the Lord Lieutenant enclosing a copy of the resolution adopted by the society, and expressing a hope that the resolution may lead to a final reconciliation of such misapprehensions as to facts on which much of the correspondence of the Department of Science and Art has been based. The council intimated to his Grace that the first steps to be taken under the resolution is to give to Lord Sandon's letter and the agreement of the 5th of March, 1877, legal effect under the act. It has been suggested to his Grace that when the letter and agreement had been confirmed an arrangement should be made for a meeting between delegates from the council and members of the Government, who now correspond to those who entered into the agreement of the 5th of March, '77, and, if practicable, in the presence of those members of Government who entered into that agreement, namely, Lord Sandon, Sir Michael Hicks Beach, and Mr. William H. Smith. It is confidently hoped that at such a meeting the Government and the society would find themselves in thorough accord. The council regret to be obliged again to report to the society that it continues to suffer seriously by the protracted non-fulfilment of the undertakings which the Government entered into with the society so long ago as the 5th of March, '77. Since the last stated meeting of the society the council have observed with satisfaction that the present course of afternoon scientific lectures has attracted much public attention. On almost every occasion the theatre has been well filled, and occasionally it has not afforded sufficient accommodation for the large numbers that wish to attend. The usual winter show of fat stock, poultry, &c., was held last December, and although the weather proved most unfavourable, the show was most successful. The annual spring show, and the horse and ram show of this society of this year will be held on these premises."

After a short discussion on the part of some of the members the report was unanimously adopted, after which a ballot took place for the appointment of the standing committees for the different departments.

### NOTES OF WORKS.

A new R. C. church is to be erected near Garvagh, Co. Tyrone, from the designs of Messrs. O'Neill and Byrne, architects, Belfast.

St. Philip's Church, Miltown, was opened on Sunday last after additions and improvements under the direction of Mr. Thomas Drew.

A mural tablet has been erected by the parishioners of St. Mark's in the parish church, to commemorate the munificence of their vicar, the Rev. Dr. Fuller, in restoring and re-pewing their church at his own cost. The tablet is of chaste design in white marble, with coloured marble columns, and has been designed and executed by Mr. C. W. Harrison, Great Brunswick-street.

### HOME AND FOREIGN NOTES.

**THE IRISH BOARD OF WORKS.**—In the House of Commons on the 11th inst., Mr. Mitchell Henry gave notice that on that day month he would call the attention of the House to the position and doings of the Board of Works, Ireland.

**CARLISLE BRIDGE.**—In another column we give particulars of the progress being made at new Carlisle Bridge, under Mr. B. B. Stoney, as given in his report. We may here mention that the key-stone heads set in centre arch have been executed by Mr. C. W. Harrison, of Great Brunswick-street. They are facsimiles of the old ones, and are cut in Portland stone.

**SATURDAY LECTURES.**—This afternoon will be commenced a series of lectures on "The Art of the Italian Renaissance," by John Todhunter, Esq. M.D. They will be delivered in the Museum Building, Trinity College, on each successive Saturday, and will doubtless be valuable to those interested in art progress.

**ELECTRIC LIGHTING.**—The London Commissioners of Sewers have declined to renew the contract for lighting the Holborn Viaduct by electric light at a cost of 5d. per candle per hour. It was stated that the electric candles which took the place of 86 gas lamps cost seven and a-half times as much. The light was seven times greater, although the gas was better divided.

**A RAILROAD ON ICE.**—The *New York Times* publishes the following despatch received:—"Bismarck, Dakota Feb. 12.—The first Northern Pacific train, loaded with visitors and railroad iron, crossed over the Missouri to-day. The track is laid on the ice with twelve-foot ties. The train is the first that ever went over the river ice without some special bridging underneath. The ice is 3 ft. thick, and the thermometer 20 deg. below zero. Nine hundred cars of material will be sent over for the extension at once."

**THE DUBLIN SANITARY ASSOCIATION.**—The executives of this body have issued a pamphlet asking for a public inquiry into the cause of the high death-rate, under the conviction, as they state, that no satisfactory adjustment of this most important question can be arrived at until the facts shall have been placed before an independent and thoroughly competent tribunal, possessed of such qualifications as will command the public confidence. We will return again to a consideration of matters dealt with in the pamphlet.

**STREET OBSTRUCTION.**—At Bray petty sessions on the 1st inst. a trader was fined 10s. and costs for projecting goods for sale beyond the frontage line in Main-street. In the city the nuisance of exposing goods on the public thoroughfare is on the increase. The police look on with the greatest indifference at the infraction of the law, and, whilst arranging their white gloves, coolly have a chat with the offenders. We could point out dozens of instances in which no "vested rights" exist, and in which the authorities should issue orders that the footways should not be monopolised by traders (especially provision dealers) to the great annoyance of pedestrians.

**DRUMCONDRA TOWNSHIP.**—In respect to the Port and Docks Work Bill it was said at the last meeting that the commissioners of the township had no ground of opposition. We are of opinion that they have, as well as the Corporation, if they are disposed to move, though we are not to be understood as advising them to do so. In respect to the Tolka river and its outfall, and the future drainage of the district, there are grounds for the commissioners being heard. *Re* wants, sanitary and otherwise, at the last meeting of the commissioners an order was given for twenty-five new street lamps, and the sanitary officer was directed to take immediate action regarding four rooms in a house in Prospect-avenue, tenanted by twenty-four persons, and also regarding a second house said to be tenanted by forty people.

**BRAY TOWNSHIP WORKS.**—At the monthly meeting of the commissioners a report was read from Mr. B. B. Stoney, the engineer of the Port and Docks Board, relative to the state of the Bray dock. The report in effect stated that from £12,000 to £14,000 would be required for the creation of anything like a suitable dock at Bray, and that any smaller outlay would be perfectly useless. Subject deferred *sine die*. Counsel's opinion was read stating that no outlay could be made by the Bray Town Commissioners in defending the present legal proceedings—in *re* Bray Pavilion Company—without the open sanction of the ratepayers. A resolution was, however, passed to take defence in this case. Mr. Doran asked by what authority counsel had already appeared in this case on the part of this board, the chairman stating that this was in connection with the general dealing of the board in this matter. Mr. Doran objected to a house built on sand without a title, and with heavy law and general charges upon it, being pressed on the ratepayers. Legal documents respecting the closing of the Ravenswell-road were received and referred to the solicitor.

**PASCAL PAOLI LAW.**—As we anticipated, the lawyers are likely to reap a rich harvest from the money and property left by this eccentric gentleman. A Miss Georgina Palmer, a lady who claims to be deceased's cousin, has been granted administration to his estate, which is said to be worth £70,000, caveats entered by two persons named Cooke having been set aside in her favour. There are, however, many claimants turning up, and a large number of locked chests discovered in his

house, supposed to contain valuable papers or property, are to be ransacked in the presence of all their solicitors. Of course the claimants will be numerous, and probably many will come forward whose claims are very slender; but the estate may possibly be swallowed up before the law is satisfied about the legal claimant. There was one redeeming point in the character of the deceased. His stock of generosity seems to have been expended in contributions to idiotic and imbecile institutions. It would be a pleasing intelligence to hear that a will turned up among his papers after the manner of Swift, and that the foundation of another lunatic asylum in our midst was generously provided for

"To show by one satiric touch  
No nation needed it so much."

**A VALUABLE BUREAU.**—A remarkable criminal case of interest and importance to dealers in second-hand furniture was once tried before Baron Parke, in which his ruling and sentence were at the time considered extremely hard and severe; upon re-argument before the fifteen Judges in London his law was held to be sound, and has remained as a text in succeeding cases. The prisoner purchased at an auction an old bureau, and finding it rather too long for a recess in which he wished to fit it, got a carpenter to cut off a portion of the moulding at one end. While this was being done, a secret drawer flew open and disclosed one hundred guineas, which had been hidden there; the carpenter claimed half, as the finder of the coin; this was refused, and a single guinea given him, the purchaser taking the rest of the money, and appropriating it to his own use. The carpenter blazed abroad the story, the heir-at-law of the deceased owner of the bureau claimed the money, and being refused, gave the purchaser into custody for stealing his property. The case was tried at the Liverpool assizes before Baron Parke, who told the jury that the prisoner only bought the bureau, and that that only was intended to be sold, that the money was still legally in the custody of the man who placed it there, or of his heirs-at-law, and that if they believed the fact that the prisoner took the money from the bureau, and spent it, that was larceny in the eye of the law. The jury had no alternative but to find a verdict of guilty, and the judge sentenced the prisoner to three months' imprisonment with hard labour.

### TO CORRESPONDENTS.

**ANTIQUARY.**—The volumes are procurable in Dublin at one or other of the second-hand booksellers. Copies may be referred to in the public libraries.

**GLASNEVIN CEMETERY DRAINAGE.**—In answer to a correspondent, we think we may safely say that the major part, if not all, of the drainage of the cemetery finds its outfall in old Finglas River, or otherwise the Tolka. Address a letter to the engineer of the Drumcondra Township Board.

**THE CHARLEMONT DEMESNE.**—We cannot say what steps are being taken to carry into effect the object for which the estate was purchased. We suppose the death of the late Cardinal has suspended the contemplated alterations, buildings, &c., and other matters.

**APOLOGIA.**—We are still obliged to postpone some articles and papers intended for publication.

**RECEIVED.**—W. K.—J. C.—M. D.—S. H. (Cork), drawing to hand.—Citizen.—G. M. (London).—Finbar.—Provincial Architect.—S. G.—Workman's Club.—R. D. S.—Limestone.—B. B.—C. E.—F. R., &c.

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Advertisement accounts furnished quarterly, when prompt payment is expected.

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Correspondents should send their names and addresses, not necessarily for publication.

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Illustration.

ENTRANCE LODGE TO ROYAL BOTANIC GARDENS,  
BELFAST.

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THE IRISH BUILDER.

VOL. XXI.—No. 463.

THE BUILDING AND ORNAMENTAL  
USES OF STEATITE.

(WITH A STORY.)

**W**E have within the last few years on different occasions devoted a series of articles on British building and ornamental stones. Many years since Mr. Wilkinson, in his "Practical Geology and Ancient Architecture of Ireland," furnished a list of excellent native building stones—granites, limestones, sandstones, and marbles,—giving also their strength, properties, and the adaptability of some of them for architectural ornament. In 1872, Professor Hull, Director of the Geological Survey of this country, published a very comprehensive treatise not only on the chief building and ornamental stones of the British Islands, but on those of foreign countries. In our review of this latter work, of which we gave a good digest at the time, we singled out several native stones for special notice, adding also additional particulars of their use and their suitability in certain positions, drawn from our own experience. Our advertising pages now and for a considerable time back will afford evidence to some extent of the trade in British and Irish building and ornamental stones, and the various uses to which they are applied; but, extending as the trade has been in this city for some years past, we would like to see it further developed by the introduction of other stones—marbles, granites, and limestones—existing in abundance in this country, and which are but rarely noticed and more rarely worked, except in the neighbourhood of the quarries where they abound.

Portland limestone has been used in Ireland for upwards of a century and a-half in connection with several of our public

buildings; but dating back for centuries Caen or other foreign cognate limestone appears to have been imported in large quantities into this country for ornamental uses, several of our old ecclesiastical edifices revealing the fact. Hard working stone was not so much discarded formerly as at present, for throughout Ireland there is a large amount of ornament executed in stones exceedingly difficult to work. One advantage of this is shown in the lasting qualities of the material, and the sharpness which it still maintains, though centuries in use. The modern heavy cost of labour attending the erection of large buildings has driven clients, architects, and builders, to the adoption of descriptions of stone that can be easily worked, particularly that which is needed for tracery, moulding, or other architectural ornament. Door and window dressings are now generally of one or other description of limestone or a soft kind of sandstone. Some of these latter stones, though very soft when taken from the quarries, have the property of hardening when exposed to the atmosphere for a few years. If the atmosphere of the locality where they are used is pure, they appear to wear well, but in large cities and towns some of these soft limestones and sandstones are soon acted upon by impurities and chemical agencies with which the air is charged, and, consequently, we find the stones in a few years rapidly disintegrating and crumbling into dust. This is a great evil, and a sorrow besides to the lover of art and architecture. The atmosphere of Dublin as yet is tolerably pure, and building stone, properly selected, worked and placed, wears well, compared with that of other large cities. In London and some of the large manufacturing towns in the sister kingdom the stone-dressings in limestone and other freestones evidence symptoms of rapid decay in a few short years, and the ornamentation is often a sorry sight to behold. The Portland stone used in St. Paul's Cathedral by Sir Christopher Wren is of good quality, and appears to have been well selected. It certainly was not from the same quarries, or at least it was raised from a different depth than the material that is now generally sent into the London market. There are good and bad descriptions of Portland stone, and certain quarries at Portland show a considerable divergence in the properties of the stone raised. In Ireland, as far as we know as yet, there is but a very small area occupied by an oolitic limestone like that of Portland, and this Irish variety is distant from the capital, being along the shores of Killala Bay. In the ruined and still beautiful Abbey of Moyne in that locality, this Irish oolite has been used, and the sculptures there existing, though several centuries old, still preserve their sharpness of outline. We would like to see some of this Irish Portland or oolite brought into the market and used for ornamental purposes. Perhaps some of our Dublin stone merchants would do well to make the experiment. If any architect engaged on an important work in this city were to specify for its use, we have no doubt but the material would be soon in the market.

There is another stone in this country, and which exists in great abundance in Donegal County—rich in granites, limestones, and even marbles,—which is adapted for sculptural ornamentation. The stone we

allude to is known by the name of *steatite*, and commonly called Cam stone or soap stone, from its soft nature. It is of a bright sea-green colour, and it appears to have been used centuries ago for sculptural and monumental work in the Abbey of Kilmacrenan, in Donegal. Steatite can be had in any quantities in all the mountain parts of Kilmacrenan and Bannagh. Steatite is as easily carved as a piece of pine, and can be cut with a common saw, like Caen and some English limestones, which are extensively used for dressings, or ornamentation, capitals, mouldings, &c. It bears the weather well without crumbling or exfoliation, preserves its angles sharp, and sculptured work executed in this stone several centuries ago shows it nearly as perfect as when it came from under the stone-carver's chisel. We, therefore, boldly put in a plea for the use of steatite in architectural ornamentation. We use all kinds of coloured marbles—black, white, green, or variously variegated—and various also are the colours of our limestones, and sandstones, and granites. Amateur artists in Donegal, with penknife and other cutting tools, have often shaped a variety of ornaments out of lumps of steatite, and gentlemen smokers have turned out large-bowled fancy pipes. We have been informed that, though steatite may be cut with a penknife, it will stand the white heat of the smith's forge, and the ornament will not change its shape by the action of the fire, or be injured in any way.

We will here epitomise a story in relation to a piece of sculpture once belonging to the Abbey of Kilmacrenan, how it was secured, and how the natives were surprised at the cleverness of the traveller or visitor who sawed off the ornament from the body of the block of steatite. The affair, however, happened several years ago and in the mail coach era. The traveller, on visiting Kilmacrenan Church, espied over the entrance door of the church the head of a mitred abbot inserted. This piece of sculpture appeared to him to be carved in better style than what stone-carvers were generally in the habit of executing, and on making inquiries he found it was taken from the adjoining abbey, said to have been built by St. Columbkille. Thither he directed his footsteps, and found the ancient builders were well acquainted with the uses of steatite. He found also a common evil to lament over—too common, alas! hitherto all over the British Islands. Nearly all the ornamental parts in sculpture were picked out of the ancient buildings and had disappeared. The mullions, tracery, decoration of baptistery and altar, and even the quoins were removed to form headstones and to mark the boundaries of the burying grounds of certain local families who stood high in their own estimation. At the head of a grave our visitor found a square block of steatite with a bas-relief exhibiting one of those mythical animals or monsters with which builders in olden times were in the habit of ornamenting the capitals of pillars or corbels at the springing of their arches. The whole mass weighed about 3 cwt., which was too heavy to remove so our visitor bethought him of sending to a friend not distant for a saw to cut off that part containing the carving, and leaving the remainder to the original robbers who robbed the abbey to answer still as a headstone.

What a world of labour, thought our visitor with the saw, would have been saved to Lord Elgin had he been able to saw off the friezes



from the Partheon at Athens with the same facility as I have from the face of this old block of steatite? While engaged in sawing, a crowd of persons collected, who came from the adjoining houses, and they expressed their astonishment, for none of them were aware of the soft and yielding nature of the stone, or suspected a saw would as easily cut it as a piece of deal or pine timber. Some of the lookers-on began to suspect that the operator possessed some extraordinary power; and one man, drawing near, ventured to interrogate thus:—"Why, then, please yer honor, that's quare work you're at this morning. I'm thinking you must have brought that saw from foreign parts, for devil a saw myself ever laid my two eyes upon could drive away through a whinstone as you're doing. 'Twould be standing many a pound in Anthony O'Donnell's way, that has contracted for the new chapel at R— had he such a tool as this to cut out his quoins and reveals. Maybe it wouldn't be impertinent to ask your honour—oh! blessed day, he has already cut through the rock, as if it was a piece of balk—what you paid for that saw, which appears no better than one might buy in any shop in Letterkenny for four shillings."

The operator humoured the conception of his peasant interrogator in order to excite a high idea of his own good luck in being possessed of such a treasure of a saw, and in order to be enabled to carry off his bas-relief without molestation, hinted that his saw was a patent invention, and that by-and-by such tools would be in common use. Having secured his piece of sculpture, the visitor carried it off in triumph under his arm, amid the astonishment of the villagers, who seemed in doubt whether the saw or its owner was most to be wondered at.

In Donegal, as we already stated, there is an abundance of steatite, and the great difficulties that existed forty or fifty years ago of procuring it and shipping it exists now to only a limited extent. We have railways and a regular service of packets; and if the wilds of Donegal are not opened, the ports of Letterkenny and Derry are available for exportation. Donegal granite has of late years become well known for its excellent qualities; but there is white marble in Donegal, though not so fine in grain as Carrara, still it is well suited for statuary purposes. With Irish oolite, white marble, and steatite, with other marbles, limestones, and sandstones already indicated, there is no lack of suitable building material in this country for ornamental as well as ordinary purposes.

#### THE SOUTH CITY MARKETS SCHEME.

PERHAPS it is too soon to venture upon an exposition of the cross purposes which are at present active between the Markets Board and the Corporation. Improvements, in the eyes of some of the parties, are secondary to the attainment of personal ends. Interested individuals there are on both sides, and whilst these are so desperately intent to serve themselves, there is a poor chance for the general public. The letter from the Markets Board to the Corporation is important in some respects, and, if the case is fairly stated, it goes to prove that the Corporation has no ground for opposing the bill of the markets body. It is denied by the latter that their present bill is promoted for the purpose of relieving it from the obligation to widen South Great George's-street. In fact the markets company considers the widening of

the street an essential feature in their project, and it has abstained from inserting certain clauses in the bill it is promoting, as it thinks it unnecessary to ask for Parliamentary power which it at present possesses. In the opinion of the Corporation the bill in its present form is sufficient to warrant the worst suspicions. If not interfered with, the Markets Company engages to carry out its original scheme in its entirety. The new powers sought for taking lands are said to be essential from an engineering point of view. The company stoutly denies it is causing any delay more than is impossible to avoid, and that the widening of the street at once would be most unwise and inconvenient. Certainly it would not be a judicious act to pull down the whole side of George's-street at once, as it might seriously affect the trade interests in the street. A beginning, however, might be made, and, as certain sections were pulled down, space would be available for new buildings at enhanced rentals. The street must be widened, too, before a double tram line can be worked. If legal proceedings take place, and the Corporation and the Markets Company play at cross purposes, public moneys will be uselessly wasted, and a public improvement postponed. We had hoped before this time the South City Markets would be an accomplished fact, but if the cloud further thickens the prospect cannot be otherwise than gloomy. Unfortunately in this city acts passed for the general welfare, and projects promoted for the common good, are taken advantage of by speculators both inside and outside our public boards. Sometimes one person is made a scapegoat, while a number of other wire-pullers sing dumb, or put forward a dexterous expert to ride the high horse for them, and throw good handfuls of dust in the citizens' eyes.

#### THE IRISH SLATE TRADE.

THE great depression that has existed for several months past in various industrial fields, including building—the industry which for a number of years has been rife in Ireland,—has affected the slate trade, and in consequence no dividend was declared at the last half-yearly meeting of the Killaloe Slate Company. We learn from the directors' report that in the district where their property is situated, as well as in other places, there had been a bad harvest for the last two years, and that those who were in the habit of using slates were unable to do so. The chairman said not only were Welsh and American slates introduced into Ireland, but he was personally aware that in Limerick orders had been solicited for Italian slates. With the depression of agriculture and the competition existing, their profits for the half year were only £175 6s. 5d. But there was no ground for despondency. They suffered just as other companies suffered at present, and he had great hopes that with a fair, with even a moderate, harvest they would have a large and prosperous trade. It should be recollected that since 1870, when they got possession of the quarries, there had been paid an average dividend of £5 19s. 1d. per cent., and that there had been returned to the original shareholders holding £100 worth of shares, £65 10s., or two-thirds of the original capital. The directors did not think it prudent, having £3,782 8s. 11d. worth of slates on hand, to borrow money from the bank at 5 per cent. to pay a dividend. No doubt they had property to pay a dividend if they realised it, but it was considered more prudent to wait for the turn of events, and realise not merely the last, but perhaps a better dividend for the proprietors. The Garrybeg quarry was producing good slates, of a quality that need fear no competition. The directors had not dispensed with any of their quarrymen. If they did they might not be able to get them when trade revived, and a deadlock would ensue. Knowing that Lord Penrhyn and Mr. Aston Smith had their men working only

four days, it was very creditable to that small company to be able to keep their men together. He did not think the present position or the future prospects of the company warranted the state of the market with respect to their shares. No doubt there had been a panic amongst a few shareholders who wanted money and sold out. But he would be very sorry to part his shares, and his friends in the company shared his feeling. Mr. Graham Lemon had written to him expressing his approval of the policy of not recommending a dividend now, and stating that he had every confidence in the undertaking, and would not part with a single share. In conclusion, the chairman said the simple fact was the company had been passing through a severe crisis. They should bear their share. They could not expect to rise to the surface when similar undertakings were depressed. He believed, however, that better times were in store for them.

We echo the chairman's hope, for some of the Killaloe slates are excellent, and we would like to see this national industry more fully developed. The slate trade in general for several months had fallen off; and Welsh slates which sold for £24 per thousand are now quoted at £15, and American slates were competing with the home industry. We notice that a protest was made on the part of one or two gentlemen at the meeting against the directors accepting their usual fees when the shareholders were receiving nothing. It was urged that the former should forego their fees. The chairman, however, repudiated the idea that the directors of that, or any other company, were not to receive remuneration when their services were efficient and faithful. He frankly confessed he would not give his time to their business if he was not paid for it. As was natural, his brother directors agreed with him, and the shareholders are consequently to live on hope—a not very substantial substance at the best of times. Now the Killaloe Company is not a very strong one at present, even accepting the directors' best picture. Their property, we are told, is as good, if not better, than it had ever been. They possessed £5,000 over all they owed, besides their quarries, plant, &c., but even this is not enough to rely upon. A determined effort is needed, we think, to develop the Killaloe slate trade, and in these times of fierce competition the directors will need to open new markets, and not content themselves by supplying merely their old customers.

#### THE MUNICIPAL VIEW OF THE PORT AND DOCKS BOARD BILL.

THE chairman of the General Purposes Committee of the Corporation at a late special meeting explained at length the report of that committee on the effects of the proposed bill if carried into law. The clauses sought to be provided for, in the opinion of the committee, would be as follows:—1. The preservation of the sewer outfalls at the Smoothing Iron and at Ballybough Bridge, and the extending of a sewer westward (at the cost of the board) from the Smoothing Iron towards the point originally decided for discharge of sewage under the Main Drainage Act of 1871. 2. Preserving the rights in connection with the fishery, or obtaining an equivalent. 3. Preserving rights obtained along the shore under statute for main drainage purposes. 4. Rendering liable to municipal rates and jurisdiction the area proposed to be enclosed. 5. Securing a more definite recognition of the Corporation as a waterworks company than would be given by the proposed extension to the bill of secs. 253 and 254 of the Port and Docks Act, 1869. 6. Preserving rights over the wet acre lots, or obtaining an equivalent. 7. Auditing of the accounts of the board by a Local Government auditor. 8. Opening the proceedings of the board to the Press. 9. Further accommodation for ferries as the quay walls are extended. 10. Enclosing of the Tolka by retaining walls. The committee considered it desirable that a



conference should be had with the Port and Docks Board, so that in regard to these matters arrangements might be arrived at, and the necessity avoided of prosecuting the petition against the bill at cost to both bodies. Mr. Byrne said he did not intend to refer to the observations made at the last meeting by Mr. French about little jobs, for he was satisfied the public who read the report of the meeting would come to the conclusion that the Corporation were simply doing their duty to the citizens of Dublin. The Corporation were prohibited from interfering except where their own rights were interfered with, and it was a satisfaction to find that there was a body like the Chamber of Commerce to protect the commercial interests of the city. It was not part of his duty to tell them how the board sought to borrow £250,000 without telling the citizens what they were going to do with it, or how they had raised the price of ballast, to the injury of the small shipowners and in favour of the large shipowners, who were largely represented on the board. Speaking of the provisions of the bill, Mr. Byrne said the board sought to make a clean sweep of the whole of the Clontarf shore without any reference to the rights of the Corporation. It was said that if the meetings of the board were open to the Press it might lead to speech-making; but it would be better to have speech-making than that hundreds of thousands of the public money should be dealt with in private. He had no desire to speak disrespectfully of the board, for they had done a vast deal of good for the city; but it would do them no harm that they should be open to public criticism. In conclusion, Mr. Byrne moved a resolution authorising a petition to be lodged against the bill; that concessions be sought in it, and expressing the opinion that it was desirable that a conference should be had with the Port and Docks Board, so that in regard to these matters arrangements might be arrived at and the necessity avoided of prosecuting the petition at a cost to both sides.—Adopted.

#### ST. CANICE'S CATHEDRAL, KILKENNY.

As will be seen by an advertisement in another part of our paper, the Restoration Committee of the above Cathedral have determined on expending a considerable sum of money on making the roofs wind-proof and the stone gutters water-tight. All the roofs, which were put on entirely new about twelve years ago, were (with the exception of those of the chancel and chapter-house) constructed with timber sheeting laid on the rafters, the slates being nailed to the sheeting, which was not rabbeted, or grooved and tongued; consequently all the joints of the boarding have opened to a greater or less extent, allowing free access to the outer air, which rushes in with greater or less force according to the force and direction of the wind, and the difference of temperature between it and the air within the building when the heating apparatus is in action, creating great draughts and making the church most uncomfortable for the greater part of the year. It is most difficult at all times to prevent draughts in a large building when artificially heated; and it will always be impossible to do so when the heated air comes in contact with such conductors as boards and slates, even were there no interstices between the former through which it could escape. Hot air rising quickly from below must be rapidly cooled by contact with such a roof, and consequently will rush down by the faces of the walls as rapidly as it has risen, and return to the source from whence it has emanated. When a building is heated by hot-water or hot-air pipes running along the centre, there must at all times when these are in action be more or less movement of air towards them, which becomes a sensible draught when the air has been much cooled in its passage up to the roof or the ceiling

and down again. How great such a draught becomes when the heated air escapes freely through the roof, and the cold outer air as freely enters and rushes down to take its place, those who have attended the services in St. Canice's Cathedral during the past, or, indeed, any winter since its re-opening, can testify. In addition to this the hot-water apparatus, though it consumes an immense quantity of coal, distributes but little heat, owing to the construction of the boiler, deficiency of height in the pressure column, and defects in the connections. An effort is now being made, through the energetic initiative of the Dean of Ossory, to provide funds to remedy these defects.—*Moderator.*

#### MOVABLE BRIDGES.\*

THE term "Movable" was used as being more general in its application than any other. Such bridges mostly occurred where delay of traffic was to be avoided. Hence rapidity of movement and minimum of repairs should be sought. There should be no unnecessary weight; for this reason steel was preferred to iron as a material, saving 25 per cent. of the weight of the parts strained. Movable bridges were divided thus:—1st, bascules; 2nd, swings; 3rd, traversing; 4th, lifts; 5th, pontoons.

1st. Bascules were illustrated by the railway bridge over the Ouse at Selby, erected in 1839. The largest of this kind had been opened at Copenhagen in 1867. Overhead beam bascules were much used in Holland, the beams being usually of timber. The author had erected a large single flap bascule over the Shannon, to carry a railway; the floor was open to let the wind through when the flap was raised; it acted well. 2nd. Swing bridges formed the most important class, and all large structures in Europe and in America belonged to this type. Double passages were preferred, as obviating heavy counterpoise and wind stress; instances of both occurred in the South Bridge, Hull. Swing bridges were classified thus:—Those that turned on rollers only; those that turned on rollers and a centre pivot; those swung entirely on centre pivots; those lifted on a water centre and tilted; those relieved by hydraulic pressure acting upwards at the centre; and floating swings. Unlimited hydraulic power available for turning was not conducive to obtaining light and well-designed structures. The earliest swing bridges were of timber; then cast iron was employed, and now they were universally of wrought iron. The Brest Bridge having two leaves, spans the largest passage crossed by any movable bridge; it turned on rollers. To the same class belonged also the railway bridge over the River Ouse at Goole, which was almost the largest railway movable bridge; it crossed two passages of 100 ft. span each. There were several bridges of this kind at Birkenhead. The Duke-street Bridge rested on rollers 5 ft. in diameter; it was not balanced over the centre, and was difficult to open. Athlone Bridge, over the Shannon, had rollers only 8 in. in diameter; it worked badly. The great majority of swings turned on rollers and a centre pivot, including all the large American bridges; the most notable was the Raritan Bridge, a double swing, with two passages of 216 ft. in width each. This bridge, which had been erected by the Keystone Bridge Company of Philadelphia, was peculiar for being lifted entirely off its abutment supports, thus needing no wedging up. To this class belonged also the tilting bridges generally adopted in France, at Dunkerque, Gravelines, Havre, Cette, and Toulon. The same type had likewise been adopted in North Germany. The principle might be described thus:—The whole bridge being slightly out of balance, each leaf or the heavy end was set up by various methods; and when the abutment support was withdrawn, it dropped on two or more wheels, the main weight, how-

ever, being carried by the centre pivot. A bridge of peculiar construction had been erected at Grimsby to carry the Manchester, Sheffield and Lincolnshire Railway; it had no tail end, or counterpoise; it was anchored at the pivot, and bore with a pressure of 122 tons on a pair of wheels near the edge of the passage. The Dutch type belonged to those turned entirely on centre pivots. They were to be seen at Rotterdam and Velsen, on the North Sea Canal. The girders were under the roadway; and the point of support was brought above the centre of gravity, by means of a long cone passing up between the girders. In those lifted on a water centre and tilted, the leaves were slightly out of balance. When the centre was raised by hydraulic pressure, the bridge tilted so as to bear on wheels. In some cases, as at Leith and at the Albert Dock, Hull, the tail end was heavier, and dropped with its wheels on to a trampoline. Or, as at Marseilles, Millwall, Stothcross (Glasgow), &c., the tail end was lighter, and rose in tilting till its wheels bore against the underside of an inverted trampoline fixed round its sweep. The dimensions and arrangements of the Leith and Marseilles bridges, which were constructed in the same year (1874), were compared. Swing bridges, relieved at the centre by hydraulic pressure, were represented by the Tyne Bridge, which was the largest and most perfect in this country, having two passages of 110 ft. each. Floating swing, as constructed by the author in Dublin, were used, one to carry a double carriage road, and the other a single line of railway; the latter acting also as a turntable for wagons, so as to shoot them across the dock entrance. The principle was to support nearly all the weight on a submerged buoy, which turned on a centre pivot on the bottom. These bridges were effective, and suitable for places where the foundation was bad. Traversing bridges required much power. The larger ones were represented by the bridge at Swansea, over the River Tawe, in which the heavy end was across the passage. In swing bridges that turned on rollers, by withdrawing the supports from the long end, the tail end rose till the wheels came level with an upper traversing rail, upon which the bridge was rolled back. In the case of the Millwall Dock, the centre was raised by hydraulic power, and the light end, which crossed the passage, was held down by horns, that prevented its rising; hence the heavy end rose to the proper level to be rolled back. There were many other forms of traversing bridges, the best for a railway and manual power being at the Dovey Viaduct. Mr. Kinnip's submerged caisson was also a traversing bridge, the wheels taking the portion of weight not buoyed up, running on rails laid in the bottom; it bore the same relation to other traversing bridges as floating swings did to other types. The balancing of both swing and traversing bridges should be as nearly as possible over the centre, otherwise, particularly in the former, motion was difficult. The proportional lengths of tail ends of swings varied. In the Marseilles Bridge the tail was to the passage arm as 0.62 to 1; in the Brest Bridge, as 0.50 to 1; and, in the South Bridge, Hull, as 0.40 to 1. These represented extreme and mean cases. If possible, the counterpoise should form some useful part of the bridge, such as cross girders and flooring combined, in the form of a solid cast-iron floor. The modes of setting up the ends were various, consisting of wedges, inclined planes, toggles, weigh shafts, eccentrics, hydraulic lifts, screws, &c. Phoenixville Bridge Company had a self-adjusting joint of the rails, something similar being used at Keadby Bridge. At Marseilles, there was a bridge which was a combined bascule and swing. The first motion of the centre ram lifted it off the bearings only for being swung; but it could be further lifted till a part of the bridge turned round a horizontal axis; and it allowed barges to pass without being swung, thus saving much time. Lift bridges which rose bodily and allowed a passage for canal boats, were not common. One had

\* By Mr. James Price, M. Inst. C.E. Read at Institution of Civil Engineers, London, on the 11th ult.



been erected over the Surrey Canal, and another by the author, which worked well and easily. The author had charge for many years of an ingenious pontoon bridge, erected by Mr. Robert Mallet, M. Inst. C.E., which worked most satisfactorily; it was now done away with, a portion of the canal which it crossed having been filled.

#### ENTRANCE LODGE TO ROYAL BOTANIC GARDENS, BELFAST.

ABOUT two years ago plans and specifications were prepared for a new entrance lodge (a view of which we illustrated) and tenders were obtained for its erection, but the matter lay over until last year, when the architect was instructed to prepare fresh plans on a reduced scale, which being approved of by the directors, building operations were shortly afterwards commenced. The old lodge, which long disfigured the entrance at University-road, was then taken down and in its place the present handsome one has been built, the opening of which took place a short time ago. The building is entered through two arched openings into an outer vestibule 12 ft. by 7 ft., and two doors lead from this to an inner vestibule, 15 ft. by 12 ft. Off this there is a public room, and also a ladies' cloakroom and lavatory. Commodious apartments are provided for the caretaker; and approached from the garden are suitable offices, having proper sanitary arrangements. The ceilings of the vestibules are sheeted diagonally, and have pierced and moulded cornices, and these, together with the rest of the woodwork, are of pitch pine, stained and varnished. The height to the eave of the main building is 15 ft., and to the ridge 26 ft., and the most conspicuous feature in the design is a handsome clock tower rising from the corner of the outer vestibule to the height of about 42 ft. to ridge of roof, which is finished with an ornamental vane and finial of wrought-iron gilt. On the ridge of the main roof wrought-iron cresting is also fixed. The roofs are covered with blue and green slates having the ends cut to various pateras. The building is constructed of perforated red brick, relieved by bands of blue brick, and the exterior is neatly tuck pointed. All the cut stone used is of the best description from Dungannon quarries. The sashes are glazed with plate glass. The floor of both vestibules is laid with Minton's mosaic tiles. Besides this entrance lodge there are massive and ornamental wrought-iron gates of very superior design hung to heavy cut-stone piers, and on the top of the centre piers are fixed iron gas standards and glass globes, the former neatly gilt. The gates and also the rest of the wrought-iron work have been supplied by Messrs. Riddell and Co. The style adopted for the building is Venetian Gothic. The details are effective, and the arrangement and appearance are generally satisfactory. The carving on the several parts of the building is very elaborate. Over the double arches is a label moulding, terminated at the intersection by boldly cut bosses, wrought into the forms of the lily and the grape vine. The cusps of the arches are also enriched with bosses. The spandrels in the window heads are filled with the foliage of the rose, passion flowers, chestnut blossom, laurel, aurelia, cibolium, and water lily. The caps on the tower have the foliage of the columbine, thorn, ivy, maple, sycamore, chestnut, &c. The gate piers, four in number, are

ornamented with flowers, viz., anemone, primrose, lily of the valley, pansy, and hop blossom, and two of them are terminated by graceful finials, carved in the forms of the Nile lily and convolvulus. All the carving was executed by Mr. Alexander Steven, and is most creditable to him. The work in connection with the lodge has been executed by Messrs. Dixon and Co., according to plans and under the superintendence of the architect, Mr. William Batt, jun., M.R.I.A.I., of Donegal-place.

#### BOOKS RECEIVED.

*New Dublin, or Health in Highways, Byeways, and Homes.* By J. W. Houghton, C.E., &c. Dublin: M. H. Gill and Son.

WE cannot devote space in present issue to examine the statements contained in this pamphlet. It has a "catching" title, but in "New Dublin" there is nothing very new or original,—indeed the subjects discussed have been over and over again well thrashed out in these columns, as well as in those of our professional contemporaries. The Dublin Sanitary Association in its reports have in part gone over the same ground, as far as it relates generally to the unsanitary condition of the city and its death-rate. The major part of the pamphlet consists of condemnation and fault-finding. To be sure there are a number of general truths in company with a greater number of bold assertions which would need to be qualified. The Borough Engineer has denied several of the statements made in connection with the drainage and sewers, the jointing of the pipes, &c., and perhaps it is better at present to leave that part of the subject which deals with "Under the Surface" to be fought out by the author and the Municipal Engineer. As regards "Over the Surface," every intelligent observer can see much for himself in respect to the condition of streets, lanes, houses, and all their unsanitary belongings. On some of these heads Mr. Houghton tells us the old story over again in other words, and betimes forcibly, and the Corporation comes in for no small blame. We have often been accused for sharply criticising the neglect of the municipal authorities, but our greatest enemies could not accuse us of doing so to subserve personal interests.

Mr. Houghton sees nothing good in egg and bird on Cork-hill or in municipal departments, and the city itself is little less, in his opinion, than a normal cesspool. There are some men in our midst who, while pointing out the dreadful danger of living in Dublin, do not hesitate themselves to embrace the first opportunity of a fat appointment (or, for the matter of that, a lean one) that may be offered to them. The condition of Dublin is bad, the Corporation is very blameworthy, but it is not wholly to blame, so no good will be effected by going outside the truth or the facts of the case. We must end our brief notice for the present by again repeating "New Dublin" contains nothing new, where the subject is confined to facts. Certain statements and opinions are advanced however, which challenge more than a passing notice, and to a consideration of these we may return in our next impression.

*The Carpenter's Slide-Rule: its History and Use, &c.* Birmingham: John Rabone and Sons.

THIS is a manufacturer's manual or treatise, but in the present instance it is not the whit the worse for that, for the literary and technical work is conscientiously performed. We have here a clear exposition of the scientific bases and principles on which the slide-rule is founded and applied in various measurements appertaining to all the wants of the building and kindred branches, for the carpenter's slide-rule is applicable to measuring all kinds of artificers' work in connection with civil and naval architecture, vessels of

various shapes, solid bodies, cones, cylinders, mortals, timber, paving work, and sundry and several others in connection with arts and handicrafts.

To the operatives of the building trades alone a proper understanding of the carpenter's slide-rule is a great acquisition, and saves a world of labour in calculations. The author of this little treatise, in his instructions, makes everything "as plain as a pike-staff" (to use a common phrase). Irish mechanics are reputedly smart at figures, but in our experience we found the best examples of this smartness often outside in branches where it was less necessary, or where little opportunity was afforded to the members for applying their arithmetical powers. The carpenter's slide-rule is not found in the pockets or on the benches of building workmen as often as it should be, the common two-foot or three-foot rule being the substitute. Though we would strongly recommend the more general use of the slide-rule, we are nowise desirous of encouraging young workmen or apprentices from exercising their mental powers or working out calculations themselves in the ordinary though tedious way. However, in this busy competition age, when the saving of valuable time means more money, a knowledge of the various applications of the slide-rule will be invaluable to workmen. This rule will often be found as useful in the hands of engineers, architects, and surveyors, and gaugers, as their own respective instruments. Indeed all problems by the lines A and B on the carpenter's slide-rule may be worked in exactly the same manner as on the engineer's slide.

Apart from the technical portion of this little treatise, the brief history of its origin and use is full of interest, as we have facts given concerning the lives and labours of Napier (of the logarithms), Gunter, Cocker, Oughtred, Forster, Everard, Newton, Boulton, Watt, and others whose pioneer labours are so intimately connected with the science so wonderfully embodied in the perfect carpenter's slide-rule. We commend Mr. John Rabone's little manual to the attention of Irish builders, clerks of works, foremen, and workmen. As a manufacturer of rules, &c., his house sustains a deserved reputation. In our desire to assist workmen, we go a little out of our way in mentioning that the moderate cost of the little treatise is threepence, and by a workman money could not be better spent.

We have also received the following pamphlets:—Condition of Malta, by Samuel Plimsoll, M.P.; Report of National Boiler Insurance Company; Report of Amalgamated Society of Carpenters and Joiners. From Messrs. Cassell, Part 15 of Great Industries, and Part 28 of their excellent work, the Practical Dictionary of Mechanics. Their Magazine of Art has not reached us for several months.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE eighth ordinary meeting was held on the 24th ult. Mr. Charles Barry, President, in the chair. Amongst the books presented to the library were the whole of Captain Shaw's works on "Fire Surveys," "Fires in Theatres," &c., which will prove of no small value to architects and others. Mr. J. K. Colling read a paper on "Architectural Foliage." The Institute dinner will be on the 26th inst., and H.R.H. the Prince of Wales, will be present on the occasion. Mr. G. E. Street has resigned his position on the council. The Royal Gold Medal for 1879 is to be presented to Comte Melchior de Vogüé, Hon. and Cor. Memb. Mr. W. J. N. Millard was elected to the Pugin Travelling Studentship for current year.

WASTE LANDS IN IRELAND.—Col. Colthurst has given notice that next month he will call the attention of the House of Commons to the reclamation of waste lands in Ireland.



## Moore's "Jubentia."

PART I.

## OUR NATIONAL POET, AND HIS SCHOOLMASTER.

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IN looking back on the boyhood of our illustrious and national bard, his early associations and tastes, we are irresistibly led to the conclusion that if Samuel Whyte never lived, the "Melodies" of Thomas Moore, and the other works that bear his name, would probably never have been written. In all probability had young Moore met with some other schoolmaster for his tutor, the great poet of a subsequent generation—and for all generations—would have settled down as a man of law, and have finally shuffled off his mortal coil as a very indiffererent and not over-rich lawyer. It was, however, fated to be otherwise, for the honour of our country and the fame of her yet greatest poet.

We will here take a glance at the early boyhood of Moore, at the period when he was entering on his 'teens. It was half way in the Irish parliamentary period when Dublin could boast, notwithstanding numerous absentees, of a rich, influential resident nobility, gentry, and of wealthy traders. Balls, levees, and public entertainments were rife, and there were few of the mansions of our nobility in the provinces but were the scenes of many festivals or private theatricals at some time or another in the course of the year. Many of the parliamentary heroes of the Irish Houses of Lords and Commons disdained not to unbend themselves betimes, and even become the *dramatis personæ* in these representations.

Samuel Whyte assisted not only by his pen but by his advice and counsel in many of these entertainments. A poet of some ability himself, he encouraged the youthful muse of others, and he at the same time gave many a friendly monition where his discriminating judgment detected errors and frailties that betokened probable disaster.

In January, 1793, the first number of a monthly magazine, entitled "Anthologia Hibernica: or Monthly Collections of Science, Belles-Lettres, and History," appeared. This periodical was a most creditable publication, and is now somewhat rare. It was published by Richard Edward Mercier and Co., Anglesea-street. To this magazine young Moore sent his first published contribution, dated from his father's residence. We have a copy of the *Anthologia* before us as we write, and thus it was that he timidly and covertly introduced himself to the editor:—

To the Editor of the *Anthologia Hibernica*.

[12] Aungier-street, Sept. 11, 1793.

SIR,—If the following attempt of a youthful muse seems worthy of a place in your magazine, by inserting them you will much oblige

A Constant Reader,

TH—M—S M—EE.

## TO ZELIA,

ON HER CHARGING THE AUTHOR WITH WRITING TOO MUCH ON LOVE.

'Tis true my Muse to love inclines,  
And wreaths of Cypria's myrtle twines;  
Quits all aspiring, lofty views,  
And chaunts what Nature's gifts infuse;  
Timid to try the mountain's\* height,  
Beneath she strays, retir'd from sight,  
Careless, culling amorous flowers;  
Or quaffing mirth in Bacchus' bowers.  
When first she raised her simplest lays  
In Cupid's never-ceasing praise,  
The god a faithful promise gave—  
That never should she feel love's stings,  
Never to burning passion be a slave,  
But feel the purer joy thy friendship brings.

These were the first modest lisings of the author of "Lalla Rookh." Whether Zelia was a myth of the fancy, some earlier Lesbia or later Nora Creina in flesh and blood, we are unable to say. A lad that had only reached his fourteenth year may be excused for writing too much or too little on love in reality or in ladies' albums.

The above verses appeared in the October issue of the *Anthologia*, as also "A Pastoral Ballad," of six verses, commencing thus:—

Ah, Celia! when wilt thou be kind?  
When pity my tears and complaint?  
To mercy, my fair, be inclined,  
For mercy belongs to the saint.

Occasionally afterwards, until the cessation of the publication, young Moore contributed pieces of poetry, evidencing each time improvement. Those who have read the life and the poetical works of Moore will have learned that he published his "Odes of Anacreon" in 1801. These were composed while he was at college, and it may also be remembered that he entered Trinity when about fifteen years of age, or in 1794. Well, in 1794, in *Anthologia* for the month of February, we find the following:—

## A PARAPHRASE OF ANACREON'S FIFTH ODE.

Let's, with the gaily-clustering vine,  
The rose, Love's blushing flow'r, entwine!  
Fancy's hand our chaplets wreathing,  
Vernal sweets around us breathing,  
We'll madly drink, full goblets quaffing,  
At frighted Care securely laughing.  
Rose! thou balmy-scented flower!  
Reard' by Spring's most fostering power;  
Thy dewy blossoms, op'ning bright,  
To gods themselves can give delight.  
Cypria's child, with roses crown'd,  
Trips with each Grace the mazy round.  
My temples bind; I'll tune the lyre;  
Love my rapturous notes shall fire:  
Near Bacchus' grape-encircled shrine,  
With roses fresh my brows entwine.  
Led by the winged train of pleasures,  
I'll dance with nymphs to sportive measures.

In the March number of the *Anthologia* the verses inscribed to his dear schoolmaster, Samuel Whyte, appeared, bearing the date of the 1st of January preceding:—

## TO SAMUEL WHYTE, Esq.

Hail! heaven-taught votary of the laurel'd Nine!  
That in the groves of science strike their lyres:  
Thy strains, which breathe an harmony divine,  
Sage Reason guides, and wild-ey'd Fancy fires.  
If e'er from Genius' torch one little spark  
Glow'd in my soul, thy breath increased the flame;  
Thy smile beam'd sunshine on my wand'ring bark,  
That dar'd to try Castalia's dangerous stream.  
Oh, then! for thee may many a joy-wing'd year,  
With not a stain, but still new charms, appear;  
Till, when at length thy mortal course is run,  
Thou sett'st, in cloudless glory, like a sinking sun.

In the notices "To Correspondents" in the *Anthologia* for May the following acknowledgment appears:—"Our esteemed correspondent, T. M., will excuse the inadvertence by which his 'Lines on the Death of the late lamented Mr. Perry' were omitted this month; they shall appear in our next." Accordingly, as promised, young Moore's verses were given in the June issue.

## TO THE MEMORY OF FRANCIS PERRY, Esq.

Life's fading spark now gleams the last dim ray—  
'Tis out—th' unfetter'd spirit wings its flight,  
In happier climes to drink eternal day,  
And mix with kindred souls in realms of light!  
Farewell, blest shade! (if bliss the virtuous find)  
While, loos'd from earth, thou seek'st a heavenly sphere,  
And gain'st a wreath, by seraph hands entwined,  
Why yet, for thee, thus flows the sorrowing tear?  
Alas! while Memory can thy worth recall  
(For in thy mind each virtue claim'd a part),  
The dewy streams of grief, sincere, must fall;  
The sigh must heave, untutor'd, from the heart.

Francis Perry was a neighbour of Moore's father, and lived in the same street, where he died in April, 1794. He held the appointment of Deputy Clerk of the Rolls; and the young poet, who enjoyed his friendship, must have thought highly of him, judging even from the juvenile lines he inscribed to his memory.

In November the last juvenile contribution of Moore, entitled "Variety," appeared in the *Anthologia*, and the next issue saw the termination of the publication, after a struggle of two years. There was another monthly magazine published in Dublin about the same period, in which also some of the young poet's juvenile contributions appeared. This magazine was entitled *The Masonic and Sentimental Magazine*. It was, however, though well conducted, of a different stamp altogether from the *Anthologia*, which was truly national in the sense that it was devoted principally to the elucidation of Irish history, antiquities, topography, and aught that related to Ireland. It was also well written and illustrated, considering the time.

The *Anthologia* had its origin through a secession of an antiquarian clique or party, who previously worked in harness with Colonel Vallancy on the *Collectanea*. The disruption was caused by Edward Ledwich, who was jealous of Vallancy, and who otherwise differed, or made it a point to differ, from the latter's antiquarian theories. Headed by Ledwich, the discontented section, which was certainly composed of some clever men, started the *Anthologia Hibernica* as the organ of their party.

This magazine had among its subscribers some of the most able and influential men in Ireland at the time. Members of the Irish Parliament, lords, earls, ladies, professional men—in fact, it included men of all respectable grades and classes, civil and military, representatives of governmental, municipal, and learned bodies.

Looking over the list of subscribers' names in the *Anthologia*, we find the name of our countryman, the late Duke of Wellington, at the time when he was "Hon. Arthur Wellesley, Lieutenant-Colonel



of the 33rd Regiment," which was about the period when he was twenty-four years of age. The name of Miss Owenson, afterwards Lady Morgan, is also among the subscribers, and several equally historic names which we cannot enumerate here. Among the list we must, however, not fail to mention that of "Samuel Whyte, Principal of the English and Classical Academy, Grafton-street." The name of Moore's schoolmaster appears as a subscriber (he was also an occasional contributor *sub rosa*) in each of the four volumes; that of his pupil does not appear in the first, but in the second volume, among the list of subscribers under the letter M, the name of "Master Thomas Moore" crops up, and in the third and fourth volumes it grows into "Mr. Thomas Moore, Trinity College, Dublin."

We may judge from these entries and items how far Moore's early literary longings were influenced by his schoolmaster and his tastes and surroundings. Need we wonder at the juvenile bard addressing his beloved master, and admitting—

If e'er from Genius' torch one little spark  
Glow'd in my soul, thy breath increased the flame.

When the boy-poet ventured on sending his first poetic effusion to the *Anthologia* another boy-poet, little more than two years Moore's senior, was gracing the pages of the same periodical with his most remarkable contributions. We allude to the unfortunate Thomas Dermody, whose sonnets and other poems, from his thirteenth to his seventeenth year, are, perhaps, unequalled for imagery, depth of thought, and finish, for any poet of his years, in the annals of Irish poetic literature. But, unlike Thomas Moore, Thomas Dermody crushed his noble gifts by intemperate habits, wearied out and sickened his many patrons and friends, who did all they could to reclaim him from his vices, and died eventually in absolute penury. The sad story of his wasted life is truly and pathetically told by his fast friend, to the last, James Grant Raymond, the actor, some time of the Irish stage, and later the manager of a leading London theatre. Raymond gave Dermody's poems to the public, and hunted up subscribers among the nobility, gentry, and traders. Although ill-used by the unfortunate and irredeemable young poet, as far as his professional engagements allowed him, Raymond kept an eye on the wanderings of the misguided and reckless youth. Missing him at last he followed his track, but only arrived in time to witness his dying hours in a wretched lodging at Sydenham, near London. The following lines, pencilled on a scrap of paper, were found by the side of the dying poet. They are, we find, taken from some "Elegiac Stanzas" of several verses written by him many years previous to his death, and which appeared originally in the *Anthologia*:—

O, place his dear harp by his side!  
His harp, alas, his only hoard,  
The fairy breeze, at even tide,  
Will, trembling, kiss each weeping chord.

What a contrast do not the lives of Thomas Moore and Thomas Dermody present. All that noble patronage, lords and ladies, distinguished clerics, members of Parliament, and others could do for the latter was of no avail to save him from himself, his worst enemy. Raymond's "Life of Dermody" is a biographical study and a warning; genius he possessed, but the moral training the boy Moore experienced, the ill-starred Dermody knew not.

That the young poet had a happy home in Aungier-street, and loving and indulgent parents, anxious and willing to give their son a good education, and to draw forth his latent talents every way, there can be no doubt. The young poet's home affections and memories were strong, and continued for long years after he passed out into the world. His lines "To Miss Moore," his sister and beloved Kate, written in his twenty-fourth year, when on his way to his appointment in Bermuda, shows the strength of these affections and the deep love he entertained for his sister. The familiar epistle, "Morality," addressed to his early and fast friend and college companion, Joseph Atkinson, afterwards a member of the Royal Irish Academy, illustrates the poet's views of true and false morality; but it is Moore's boyhood we have to do with now. Let us stop for a moment to mark a few of the brightening city influences of 1793-4, when the boy poet was breaking cover in the pages of the *Anthologia*. An act was passed for removing some of the religious disabilities under which the Catholics of the country laboured. Catholic grand jurors were returned on the panel, and the minor corporations, or old city guilds, began to elect a number of Catholic merchants and gentlemen to the freedom of their bodies. The Lord Mayor and sheriffs presented to Lord Moira (the patron and friend of Moore and Dermody) the freedom of the city, at Moira House, Usher's-quay, now and for long years the melancholy Mendicity Institution. The guild of "Barber Surgeons" presented in a silver box the freedom of their body to the Right Hon. John Foster, the Speaker of the Irish House of Commons, for his zealous efforts on behalf of the commercial and agricultural interests of the country. The great

tragic actress, Mrs. Siddons, was playing to crowded houses on the boards of Crow-street theatre, several native actors taking the leading parts with her, and otherwise Lady Morgan's worthy father, Owenson, was delighting Dublin audiences with his racy humour on the same boards. Private theatricals were rife at Fishamble-street theatre, in which noble lords and ladies and the leading members of the gentry were taking the chief parts. In Merrion-square, at Antrim House, and in Stephen's-green and other squares, at the town houses of the nobility, the "Grand Ballet" was to be seen often, and attended by the Viceroy and most of the nobility and leading gentry at the time in town. The Rev. Walter Blake Kirwan was preaching at St. Peter's Church, Aungier-street, and other churches through the city his eloquent sermons (considered wonderful at the time) in aid of the female orphanages and other city charities, and on some of these occasions several lords and ladies acted as the collectors, with plates in hand extracting as much at times by their winning charms as £800 and upwards at one collection. These, and a great many more, were among the attractions of Dublin city in 1793-4, together with a native Parliament in College-green, and native trade and commerce, with slight exceptions, in a prosperous condition. Young Moore, as a boy, had much to inspire his early literary efforts when he first experienced the charm of seeing himself in print in company with several veteran literary contributors hailing from the Alma Mater and other native institutions.

Before devoting some words in particular to Samuel Whyte, we will produce here the last juvenile verses contributed by Moore to the *Anthologia*\*:—

#### VARIETY.

Ask what prevailing pleasing pow'r  
Allures the sportive, wand'ring bee  
To roam, untired, from flower to flower,  
He'll tell you 'tis variety.  
Look nature round—her features trace—  
Her seasons all her changes see,  
And own, upon creation's face  
The greatest charm's variety.  
For me, ye gracious pow'rs above!  
Still let me rove, unfix'd and free;  
In all things—but the nymph I love,  
I'll change and taste variety.  
But, Patty, not the world of charms,  
Could e'er estrange my heart from thee;  
No, let me ever fill thine arms,  
There still I'll find variety.

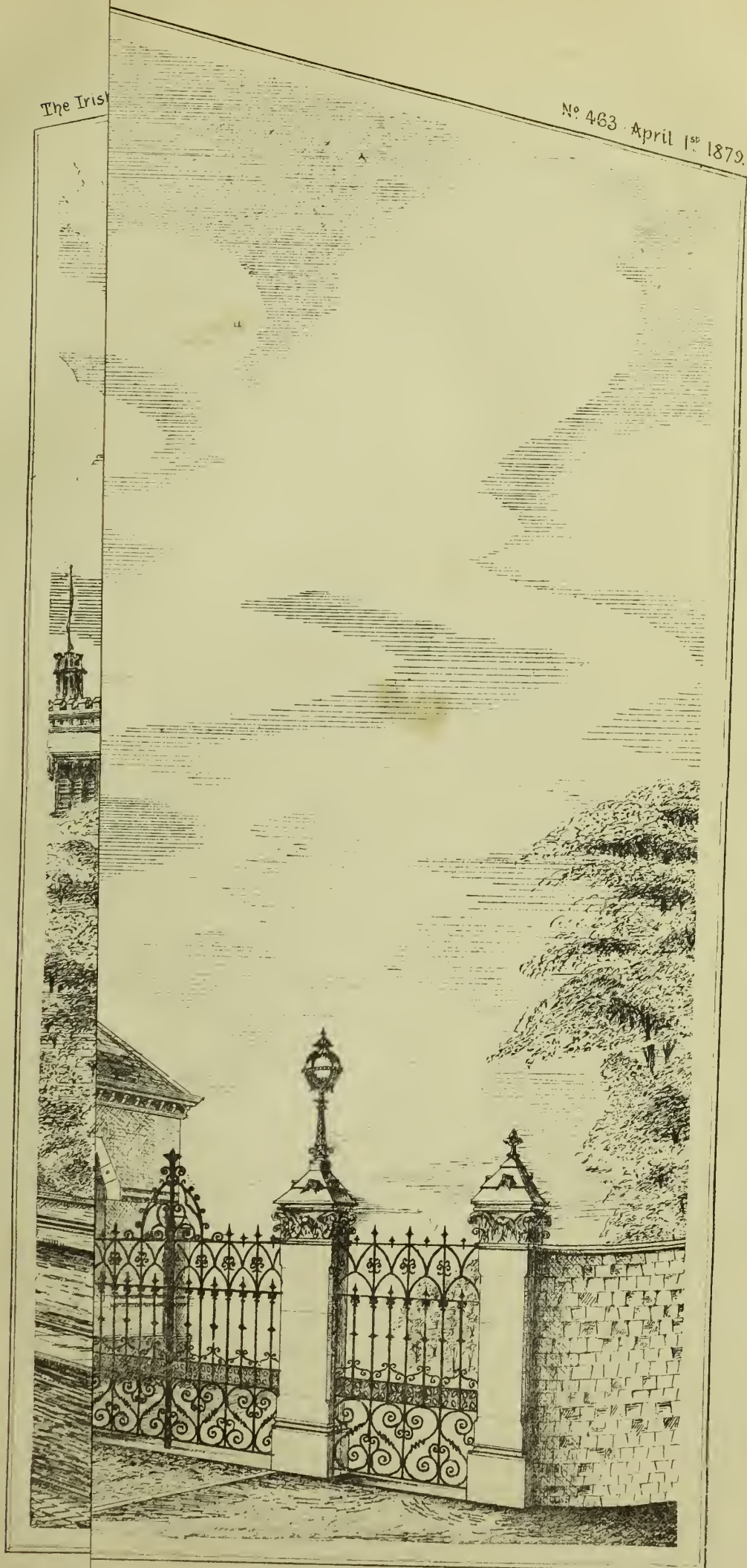
We have stated already that Samuel Whyte was a man of some literary ability, apart from his scholastic talents. We will here allude to one or more of his published works. In 1772 was printed by R. Marchbank, in Cole's-alley, in Castle-street, a large volume of upwards of 500 pages, entitled "The Shamrock: or Hibernian Cresses: a Collection of Poems, Songs, Epigrams, &c., Latin as well as English, the original production of Ireland." To the above was added, in the same volume, "Thoughts on the Prevailing System of School Education, respecting Young Ladies as well as Gentlemen, with Practical Proposals for a Reformation." The following is the title of another of Whyte's literary performances published in 1793-4, being a second edition of the work revised by Whyte's son, who carried on the classical school founded by his father for several years into the present century—"A Collection of Poems, on various subjects, including the Theatre, a Didactic Essay, in the course of which are pointed out the Rocks and Shoals to which Deluded Adventurers are inevitably exposed. Ornamented with Cuts and illustrated with Notes, Original Letters, and Curious Incidental Anecdotes, by Samuel Whyte. The Second Edition carefully revised by Edward A. Whyte, F.C., T.C.D. Dublin: Printed by R. Marchbank, and sold by Exshaw, Archer, Jones, Moore, Mercier, &c, and by the Editor, No. 75 Grafton-street, and in London by Murray, in the Strand, Dilly, &c." The principal poem in the collection is the "Theatre," and was designed to afford counsel and advice to those who had drifted to the Stage through necessity or other causes, and who may be fitted for the profession; and, on the other hand, the poem teaches a serious lesson to others who may have jumped to the Stage by allurements and garish displays, and who are in nowise fitted by nature or art for the task they have essayed. The poem was intended as an advice, with deterrent examples, for those already on the Stage, or others contemplating it. Although the poem is not a very ornate one, nor exhibiting much originality in treatment, it was a very useful one at the time it was published. A good many of the author's pictures are drawn from life; indeed, he tells us in his verses he knew the originals. We are next given several prologues, some of which were spoken by illustrious Irish representatives, or written for them. Among the

\* In the autobiographical preface to some of the later editions of Moore's works we find the poet alludes to his juvenile verses in the *Anthologia*, and speaks in high terms of that publication.



The Irish

Nº 463 April 1<sup>st</sup> 1879.



itect.





Entrance Lodge to Royal Botanic Gardens, Belfast. William Batt, M.R.I.A.I. Architect.



number were—Grattan, Hussey Burgh, Marley, the Bishop of Clonfert, and others. There is also a large collection of minor poems on serious and eccentric subjects. The notes and illustrations that make up the remainder comprise a goodly number of anecdotes of remarkable worthies who once walked the land in earthly glory. The plates that embellish the volume are by some of the best artists then resident in Ireland. The frontispiece of the volume is a well-engraved head of Moore's schoolmaster, by Hamilton, engraved by that very capital native artist, Brocas.

Amateur theatricals, at the period in which Whyte published the first-named work, were beginning to attract attention in Dublin. A number of Whyte's pupils performed the tragedy of "Cato" at the little theatre in Capel-street during the Christmas recess, and, according to Hitchcock, "with a propriety and strength of genius that would have reflected credit on the first actors on the stage." These amateur performers acquitted themselves so creditably that, at the request of a large number of the nobility and gentry who attended, they repeated "Cato" a few nights afterwards, for the relief of the confined debtors in the several marshalseas. We read that the Marquis of Kildare, the Earl of Bellamont, and Lord Dunluce, acted as trustees on the occasion. Hitchcock speaks of the many obligations the community at large owe to Mr. Whyte, and writes thus :—"Intimately connected with Mr. Sheridan, thoroughly acquainted with his pronunciation and mode of communicating his ideas on the advancement and perfection of the English tongue, he commenced teacher, and since that time has, I believe, contributed more towards understanding, the various beauties, and critically reading, writing, and speaking the language, than any other professional gentleman in the kingdom. Possessed of classical knowledge and refined taste, the youth committed to his care amply reaped from his instruction every advantage which eminent abilities and judicious observation gave, and he has the honour of saying that many of the best orators in our senate, and greatest ornaments of the pulpit and bar, have received the early part of their education under his government." In Mr. Gilbert's "History of Dublin" the academy in Grafton-street and the principal and his son are honourably noticed.

Samuel Whyte was indeed an excellent master, and his system of educating youths was perhaps the best adopted at the time. Writing of the prevailing system of school education, respecting young ladies as well as gentlemen, the schoolmaster of Thomas Moore observed in 1772 :—"Men are mistaken who imagine women are to be entertained only with trifles; and they justly hold him in secret contempt who pays them so ill a compliment. In the name of all that is good and sensible, let us throw off this tyranny of custom, and give the minds of our females a more liberal and proper bent. Along with the common qualifications of the pen and the needle, they might, with ease and pleasure to themselves, be led through a regular course of the *Belles Lettres*, such as geography, chronology, history, &c., particularly they ought to be perfected in that rare and useful accomplishment, the knowledge of their native language; to feel it in all its force, and comprehend it in all its beauties; to write it with correctness, purity, and elegance; and to read and speak it with all that consummate delicacy, propriety, and grace of which they are confessedly capable. Their minds thus enlarged and qualified for receiving and communicating the highest and most refined pleasures of rational and social intercourse, what a noble, what an intrinsically valuable addition would it make to the catalogue of their other perfections."

Remembering that the above words were written upwards of a century ago in Dublin, it must be allowed that Samuel Whyte was in advance of his time, although he scarcely touched upon the subject of industrial education for women. In a footnote to the last sentence of the above extract Whyte adds :—"Whoever casts his eyes over the list of young ladies prefixed to this work, may find abundant testimony of this truth; there may he contemplate consummate beauty without affectation, good sense without vanity, and, without ostentation, improved understanding. Perhaps a more charming constellation of female perfection nowhere exists. But still more to the honour of the young ladies of Dublin, beauty here is not a cause of rivalry; their minds are above the meanness of envy; a sisterly affection mutually inspires them; and they are ever happy in each other's praises." We would it were generally so to-day, but *O tempora, O mores!* In the list of subscribers' names to Whyte's volume, which includes the Essay on Education, some hundreds of names appear, and among them scores of his own lady patrons and gentlemen pupils, belonging to the highest ranks of the nobility and gentry of Ireland. Never perhaps in Ireland, or in its capital, was a more deservedly popular principal of a classical academy than Samuel Whyte, of Grafton-street, Dublin.

Our readers have now an insight into the life and literary tastes of young Moore's early tutor, and they can draw their own con-

clusions how far the mind of the future author of the "Melodies" and "Lalla Rookh" was moulded by the tastes of his indulgent, loving, and literary schoolmaster.

Samuel Whyte, we may add, enjoyed the friendship and retained the respect of the elite of the Irish capital in his day, and his name ought not to be lightly passed over on any occasion when our countrymen may be disposed to render further homage to the genius and worth of Thomas Moore.

## PART II.

### THE HISTORIC ASSOCIATIONS OF AUNGIER-STREET.

TIME was when Aungier-street echoed to the rejoicings of many a great pageant and ceremonial of civic show and military display of theatrical successes and excesses. History is not silent on these matters; but, in this doubting and utilitarian age, personal interests absorb the whole man, and leave him little love and less leisure to bestow on objects that ought to be endeared to him, from their grand, old, and inspiring associations. When citizens cease to love the history of their city, they are undeserving of the name of citizens. There are no surer signs of a nation's or a city's decay than the loss of their public spirit. Public spirit preserves and improves, and, where it exists, the national memorials will be protected, and the institutions that reflect an honour on our olden citizens supported and perpetuated.

Aungier-street, not only throughout the greater part of the eighteenth century, but up for several years into the present one, was a most fashionable and prosperous locality. Let us note a few of its historic associations. On a large plot of ground adjoining this street, stretching and extending into Longford-street, the first stone of what proved afterwards to be a remarkable theatre, was laid on May the 8th, 1733, about the same period the Irish Parliament House was erecting. The new building was the inception of Thomas Elrington, of Smock-alley Theatre, who for many years was the chief ornament of the Irish Stage, as his father-in-law, Joseph Ashbury, was before him. The death of Elrington, in 1732, though it put a stop for a brief time to the design, did not prevent it from being put into execution. There are strong reasons for believing that the architect of the Parliament House was also the architect of the new theatre. The ceremonial of laying the first stone, or rather the first four stones, was a remarkable one in many respects. The Right Hon. Richard Tighe laid the first, the Hon. General Napier the second, William Tighe the third, and the fourth was laid by the Hon. Sir Edward Lovet Pearce, Knt., at the time Surveyor-General of the King's Works in Ireland. The prints of the period state there was a prodigious number of persons present, and that each stone was laid with a flourish of trumpets, drums, a band of music, and loud acclamations of the people. Under each stone were placed medals struck for the occasion by the managers of the old Theatre Royal. Plenty of choice wines were provided for the gentry by the managers, and several casks of ale were given to the people assembled. The ceremonial was signalled even further, for each of the gentlemen who laid the foundation stones made presents to the workmen, and all was wound up by a sumptuous dinner, given at the cost of the managers, to the nobility and gentry.

Aungier-street Theatre was run up with such expedition that it was finished and ready to open in ten months. The first night was on March 19th, 1734 (Old Style), and the first play was Farquhar's comedy, "The Recruiting Officer." At this early date even there were three theatres open in Dublin—Smock-alley, Rainsford-street, Madame Violante's in George's-lane (South Great George's-street), with minor places of public amusement, among which was the famous Tony Ashton's Medley, in Patrick's-close. About the same period was also built a new music-hall in Crow-street, by a Mr. Jolinson, on the ruins of which, many years afterwards, arose the celebrated Crow-street Theatre, remembered still by many of our citizens, when under the management of Frederick Jones.

The history of Aungier-street Theatre, and of the great stars of the musical and dramatic world who made their Dublin *début* there, would take some time to narrate. It would include numerous names from the days of Quin, Cibber, Foote, Garrick, Sheridan, and would comprise a number of other worthies who, though making their *début* in other theatres in the city, yet had several friendships and associations with the actors, actresses, singers, musicians, and managers of this theatre. It was on the boards of Aungier-street Theatre that the celebrated and accomplished Peg Woffington, after she had quitted Madame Violante's booth, commenced her real dramatic career. She first was engaged to dance between the acts with other performers of the period, but it was not long until her wonderful grace and versatile abilities were developed. Her Polly, in the "Beggars' Opera," and her singing drew crowded houses. Miss Woffington's Sir Harry Wildair also increased her fame, and led to



tempting offers from Mr. Rich, of Covent-garden, London, which she embraced. About the year 1739-40—a year signalised by the severest distress, and long remembered in this city, a partial famine succeeding the coldest year on record—at this period it is stated that Peg Woffington made her first appearance in the character of Sir Harry Wildair. The newspapers of the day contain many tributes to Polly's genius, from her first success to her last. Among the earlier tributes paid to her acting, the one on her personation of the character of Wildair was considered good:—

Peggy's the darling of the men,  
In Polly won each heart;  
But now she captivates again,  
And all must feel the smart.  
Her charms resistless conquer all,  
Both sexes vanquished lie;  
And who to Polly scorned to fall,  
By Wildair ravish'd, die.  
Would lavish nature, who her gave  
This double power to please,  
In pity give her, both to save,  
A double power to ease.

When Miss Woffington returned, several years afterwards, to Ireland, she again appeared on the boards of Aungier-street Theatre, under the auspices of Mr. Sheridan, and greater encomiums were showered upon her. Miss Woffington's early years are enveloped in much obscurity. Her father is supposed by some to have been a bricklayer; and it has been authoritatively stated that her mother for many years sold fruit at the entrance of Fownes's-court. Of poor but honest parents, and from such a lowly origin, did the celebrated Peg Woffington spring, to afterwards conquer by dint of merit the applause of the whole British public. Margaret Woffington sleeps in an English grave at Teddington, on the banks of the Thames; and the charity she so generously founded in the same locality appears (in the opinion of the present writer, who recently visited her burial-place and the almshouses that bear her name) to be badly administered.

The masque of "Comus" was produced at Aungier-street Theatre in 1741, Quin acting the part of Comus. This was one of the most brilliant seasons in Irish dramatic annals. Amongst the celebrities was Mr. Ryan. Mrs. Clive Duburgh prepared the music, Pasquillini led the band, and the principal foreign element who executed the dances were Monsieur Laluze and Mademoiselle Chateneuf, assisted by others. Quin acted the part of Cato here also, and Othello. He afterwards proceeded to Cork and Limerick, and returned the following season to the boards of this theatre. Subsequently, Quin went through a round of characters, Shakesperian and otherwise. In the same year the tragedy of "Gustavus Vasa, or the Deliverer of his Country," written by our countryman, Henry Brooke, was produced here, having been previously prohibited at Drury-lane Theatre, London. The play was acted for several nights with good success. Henry Brooke was a very popular man in his lifetime, and was the author of "Farmer's Letters," and of another play which was acted, styled "Jack the Giant Killer." He was the father of the celebrated Charlotte Brooke, the poetess, who died young and deeply regretted, about the year 1793. Miss Brooke's "Reliques of Irish Poetry," being renderings from the Irish, are deservedly esteemed. Despite the restriction that was put upon the playing of "Gustavus Vasa," Henry Brooke netted £1,000 by the transaction, when publishing the play by subscription. Quin and Cibber were great attractions for some time at Aungier-street, but Duval, who conducted Smock-alley house, used every exertion to smash up the former by enlisting all the superior talent he could find. Duval secured Garrick, Peg Woffington, and Mr. Giffard, and more than successfully competed with his rival, for the tide of success began to flow in favour of Smock-alley, which reigned triumphant for a while at least. The rivalry between Dublin theatres at the time was most remarkable and fierce. Properly speaking, the city was not able to support throughout the year more than one theatre; yet, jealousies were so strong, that theatre after theatre succeeded, until three or four, in the space of five years, cropped up, and others continued to be erected on the ruins of former ones.

Thomas Sheridan, the father of the celebrated Richard Brinsley Sheridan, acted both on the boards of Aungier-street and Smock-alley Theatres, and was a manager as well as actor. By his efforts he purified the stage of much of its abuses, but often had to contend against infamous opposition. His independent spirit would not brook dictation or insult, and he had the mortification of seeing his theatre in Smock-alley gutted by a section of the populace in 1754. This sad event occurred during the representation of the tragedy of "Mahomet," an unfortunately appropriate passage in the play inflaming the minds of his opponents and precipitating the disaster. Sheridan acted in several Shakesperian characters, and played Cato for a number of nights to splendid audiences at Aungier-street Theatre.

St. Peter's Church also, in Aungier-street, has some associations worthy of note, but we can here mention a few only. The present edifice is on an old site, and towards the close of the last century the church was made famous by its connection with Rev. Walter Blake Kirwan. The eloquent sermons of Dean Kirwan in this church in the cause of public charities, were said to have drawn the enormous sum of £4,000 per annum for a series of years. C. R. Maturin, the Irish novelist and poet, esteemed of Sir Walter Scott, who was for many years the curate of this parish, is buried here, as also the famous Jack Fitzgibbon, Earl of Clare and Lord Chancellor of Ireland. The works of Charles Maturin are not, at the present hour, known as well as they ought to be; but fifty years ago or less his name and works were on every citizen's tongue, and many visitors to our city were delighted to go and hear the poet delivering a sermon in his own church. Jack Fitzgibbon, as the Lord Chancellor was often called, is buried at the south side of the churchyard wall, under a plain tombstone. During his life he incurred the hatred of the populace, and many a fierce combat in court and senate took place between him and Curran and Grattan. He treated the efforts and opposition of the orators with a kind of supercilious scorn, but they paid back his scorn with a kind of compound interest in pungency and vehemence. Fitzgibbon, after all, was a very extraordinary man; his efforts for the Government on the Regency question brought him into prominent notice, and in preference to every other candidate, some more fitted, he was, on the death of Lord Chancellor Lifford in 1789, raised from the position of Attorney-General to that of Chancellor. A melancholy sight was that of his funeral in the early days of the present century. The funeral procession was followed by the Dublin mob, and among them hundreds of respectable persons; and as his remains were being laid to rest, hooting, hissing, and execrations were to be heard outside the church here, and dead cats and dogs and other vile rubbish were flung into the churchyard. It was a sad exhibition of feeling, but party spirit ran high at the time, and Fitzgibbon's death seemed to give a sort of satisfaction to many among the humbler classes, who looked upon him in life as an enemy to them and theirs, and their popular idols.

Many members of noble and distinguished families are buried in this old church—among them an Earl of Roden and members of his house; bishops, clergymen, and military heroes. In the south gallery was placed a slab to the memory of Lieutenant-General Archibald Hamilton, an officer who saw some service in the reigns of William III. and Queen Anne, and who also fought at the siege of Londonderry. In the north gallery a tablet commemorated the services of two brothers—Lieutenant George Westby and his brother Edward; the former fell at the battle of Fuentes d'Honore, in Spain, in 1811, and the latter was struck down at Waterloo. This church was also the burying-place of the Dunboyne family, but for many years scarcely anyone of note has been interred in it; and here also lies Vallaucy, the Irish philologist, engineer, and antiquary.

In Moore's boyhood there was no spacious or ornate Catholic church in his immediate neighbourhood. The present century had advanced by several years before the structure in Clarendon-street of the Discalced Carmelites, or the one of the Calced Carmelites in Whitefriar-street was erected. The latter, looking into Aungier-street, is from a design of George Papworth, a Dublin practising architect of some note, and its first stone was laid in 1825 by Archbishop Murray, the predecessor of the late Cardinal Cullen. It was raised by the exertions and under the superintendence of the late Rev. John Spratt, the prior of the order, well known for many years as a distinguished social reformer, and one who, while he lived, ably and energetically supplemented the labours of Father Mathew, the first great "Apostle of Temperance." The Carmelite Friary Church, off Aungier-street, is built on the site of an ancient convent of the same order, founded in the thirteenth century, the land being a grant of Sir Robert Bagot. The little Catholic edifices that existed near Moore's home in his juvenile years, or otherwise in the locality previous to the building of the above-named structures, was the Friary chapel of the first-named order—a small, inconvenient building, hid away at the rear of houses on the south side of Stephen-street, near Aungier-street. The second order (now in Whitefriar-street) had a little chapel in French-street (now Mercer-street) not far from York-street, and immediately in the rear of Aungier-street. Before removing to the above street the Calced Carmelites had a little chapel and convent in Ash-street, in the Liberties, and the home of the order was known as the "Friary of St. Patrick."

In Moore's juvenile years several popular members of the Irish parliament, lawyers, attorneys, prosperous merchants, civic dignitaries and wealthy traders lived in Aungier-street. Among the former were: James Chatterton, who represented the borough of Doneraile, and who was also a King's Counsel; William Caulfield (the borough of Tulse); Nathaniel Warren (city of Dublin). Francis Hardy,



another Irish M.P., and the genial biographer of Lord Charlemont of Volunteer memory, resided for here awhile. Among the legal worthies were: Charles Walker, one of the Masters in Chancery; Francis Perry, Deputy Clerk and Keeper of the Rolls, and Deputy Usher of the Court of Chancery; Thomas Millwood, Deputy Pursuivant of the Court of Bankruptcy; Richard Evans, Clerk to Baron Power, of the Exchequer Court; James Johnstone, Commissioner of Bankruptcy; Edmond Moore, barrister; Edward Westley, do.; J. W. Parvisol, do.; Stuart Hamilton, do. The notable Matthew Dowling, Seneschal of the Liberties, Kilmainham, and Robert Dowling, Registrar, also lived for some years in this street.

We cannot enumerate the noted traders, but at No. 12 for many years resided "John Moore, tea merchant and grocer," the father of our national poet. A neighbour of Moore's father, a cabinet maker, of the name of Gardiner lived higher up the street at 21. John and Isaac Gardiner, sons of the preceding, were youthful contributors to the *Anthologia*, and as far as we can make out, passed through Trinity College to the law about the same period that their youthful neighbour Moore was pursuing his studies. Francis Perry, Deputy Clerk of the Rolls, &c., a resident in this street, we have already mentioned in connection with the lines that Moore wrote on his death.

Matthew Dowling, whose name occurs as Seneschal of Kilmainham, and as a sometime resident of Aungier-street, was secretary to the Goldsmiths' Corps of Volunteers; he figured in several notable matters in the city some years afterwards, as also others of his family and name. A summons was issued in January, 1792, by Dowling, of the Grenadier Company. This summons called upon the corps to meet on the following Sunday, at the parade ground, St. Michael le Pole, Great Ship-street. The summons ended in the following ominous words:—"Last year of slavery; would to God I could say it was the last hour!" The authorities took fright, and, after a

consultation at a privy council, the Lord Lieutenant issued a proclamation against the meeting of the Volunteers, and, on the day of the meeting, the civil power, under the direction of Alderman James and Alderman Warren, with Colonel Lennox (afterwards Duke of Richmond), who commanded the 35th Regiment, aided by the entire garrison and the artillery, surrounded the parade. The Volunteer force being too small to cope with such an overwhelming military body as was brought against them, resolved, after due deliberation, not to dispute their right of meeting. The artillery on the occasion had lighted matches, as it was anticipated that a resistance would be offered, and everything was in readiness for the attack. The celebrated Walter Cox, though a mere youth at this time, had the command of the second company of the Volunteers, and it was said his courage and sentiments on the occasion were "highly approved of by his brother soldiers and his superior officer, Major Bacon, who was afterwards hanged" in the troublous period that shortly followed.

Every yard's length of Aungier-street conjures up a host of bright names who lived here and out and about here throughout the eighteenth and in the early years of the present century. Were we inclined to wax very enthusiastic, we might write—and with a considerable deal of truth—that every step of old Aungier-street was "hallowed and historic ground." The ordinary visitor, illustrious or otherwise, may not, perhaps, see much to admire in the present-day aspects of Aungier-street; but for the antiquary, the literary man, and the lover of Moore, the place will possess an abiding interest. Here once were the permanent and temporary homes and residences of brilliant poets, novelists, dramatists, actors, actresses, musicians, singers, lawyers, professors, physicians, clergymen, artists, and other distinguished natives and foreigners in many walks. Verily the historic associations of the street that gave birth to the "poet of all circles" one hundred years ago, are worthy of preservation, as the locality is of improvement.

## THE NATIONAL MANUSCRIPTS OF IRELAND.

IN our volume for 1874 we gave detailed particulars of the origin and history of the first series of the valuable manuscripts which were selected and edited, under the direction of the Irish Master of the Rolls, by Mr. J. T. Gilbert, M.R.I.A., who was specially entrusted with the work of facsimile reproduction. The plan for publication necessitated that the specimens should be reproduced in accordance with the originals in dimensions, colours, and other features. The labour involved was trying and difficult betimes to the editor, for the documents selected for reproduction by the photozincographic process had to be forwarded to the Ordnance Office, Southampton; Mr. W. B. Sanderson, the Assistant Keeper of the Public Records in England, being entrusted with their custody. It will be seen that, while the labour of editing had to be executed in Dublin, the artistic portion of the work was being done at Southampton, Mr. Gilbert's other duties necessitating his presence in this city.

The second series of these manuscripts—bringing down the subject from the early part of the twelfth to the close of the thirteenth century—have also been issued; and Mr. Gilbert is now busily engaged on the third series, which will be brought down to the end of the reign of Henry VIII. The second series, we may here again observe, contain documents of great historic interest and value faithfully reproduced. The ecclesiastical part of the second series includes a very old record known as the Confession of St. Patrick; and of the secular documents the Book of Leinster is one of the most interesting if not important. We have also a number of Charters in relation to Dublin, brought to light for the first time, and most valuable to the local historian. The "Topography of Ireland," by Giraldus Cambrensis, a minutely written letter of Henry III. to the citizens of Dublin, the "Itinerary of the Viceroy in Ireland," Jocelyn's "Life of St. Patrick," the "Annals of Innisfallen," among others, are also included in the same series or part.

The work of editing is performed with care and great ability; the facts brought to

light and the information that is afforded are as full of interest, and often more so, than the documents themselves. Justice is being done to the reproduction by editor and printer in Dublin; and we only wish that the artistic portion of the volumes could have been executed here, and by a still better process than photozincography. The publication of the third part is looked forward to with great interest by historical writers, native *litterateurs*, antiquaries, and others.

## PAVING AND OTHER CONTRACTS.

As the citizens and ratepayers will soon be called upon to pay £100,000 for the paving of the streets of this city, we think it would be advisable if they would give a little more serious attention to this subject of paving and other contracts than they have in former years. That large sums have hitherto been fruitlessly expended in paving experiments with bad material, and that considerable abuses have existed in respect to tenders and contractors, there cannot be the least doubt. Several of the streets marked out for paving on south and north sides need re-paving, but some more could well be postponed for a time. The estimated cost of the number of streets selected for paving on the south side is £56,643, while those on the north are put down at £61,010. In looking over the lists of both areas, the selections, to our mind, are not, as a whole, judicious, and a revision is needed, so that the really busy thoroughfares, and those only in an unserviceable condition, may be first paved. We do not like to make invidious comparisons, but we find among the lists streets selected, not, we fear, on the score of their bad state, but for the purpose of pleasing or obliging certain friends and residents. Be that as it may, no one will dispute that many of the thoroughfares on both sides of the Liffey are in a disgraceful state. The tram service in some of our leading streets is nowise conducive to their stability or safety for vehicular or passenger traffic; and we hold it is the duty of the Corporation, in the interests of the ratepayers, to compel the tramway companies to faithfully perform their part of the conditions which they agreed to do when obtaining important privileges in connection with their services.

In respect to contractors' tenders and con-

tracts in connection with Corporation works in general there is much looseness, and the whole system needs revision. Fair open competition is needed in all contracts, large and small, and no favourite men should be selected in accordance with the foregone conclusions of one or two or more men, whether members of committees or not. The tenders sent in should be opened at the one time, and not until the next day after the one they are advertised as due. We fear that in tenders, as now manipulated in more than one public board, great injustice is done to new men or contractors who are willing to honestly supply materials or do their work efficiently. We have in our experience heard of favorite contractors not sending in their tenders till the last moment, or till after they received a friendly "tip" from officials in office of the amounts of other men's tenders. These favorite contractors were thus enabled to make their tenders the lowest, and consequently claim the work.

Candidates for office in many public boards in the sister kingdoms are called in before a meeting of the whole board, where their testimonials are considered and questions put to them before the voting takes place for their election; everything is thus fairly and openly conducted. Of course the consideration of tenders does not exactly stand on the same footing as the selection of clerks or other public officials. Both systems are open to considerable improvement, although a committee may be necessary in each case to look through testimonials or through tenders. It will be often found, too, that where there are fifty or a hundred applicants for an official appointment in a public board, a certain class of tenders will not be represented by more than a dozen of contractors. Thus open dealing and action in public before a whole board is rendered more easy, and there is less liability to underhand dealing or jobbery.

We have no particular contractors or their friends in mind at present, and our remarks are solely suggested by the pernicious system that has long existed and finds favour in some of our corporate and local boards. As a heavy sum is about being raised and expended on the paving of our city, we are justified in directing attention to some of the surroundings of the contract system, whether in relation to the supply of materials or to labour and plant included, or apart.



## GAS ILLUMINATION.\*

(Continued from page 86.)

THE burners at present in use may be divided into the four following classes:—1. Cockspur, or rat-tail. 2. Union, or fish-tail. 3. Bat's-wing. 4. Argand. Of each of these there are a number of modifications.

The cockspur, or rat-tail burner, is the simplest possible form of gas-jet, and it was at one time the only one used for burning gas. It may be made by simply drawing out a piece of glass tube and breaking off the point so as to leave an orifice having a diameter of 1 millimètre or less; but it is usually constructed of cast iron, which is drilled as wide as possible from the bottom, leaving only a thin shell, which is then bored with a fine drill. These jets are used in Glasgow for lighting common stairs, and the larger sizes were formerly employed for street lamps, but are now discarded in favour of union jets.

When two rat-tail jets are held at a right angle to one another, the lights coalesce and form a flat sheet of flame. When this discovery was first made, two burners were fitted up in this way, but soon a single burner was contrived which combined the two, and hence was called a "union" jet; it is also known as a fish-tail, from the resemblance of the flame to the tail of a fish. It is a short cylindrical tube with a flat top, in which the two orifices are drilled at about 90 degrees to one another, and meeting in the centre. The union jet is much improved by substituting for the metal top porcelain or stoneware, the principal advantage gained being that the orifices remain clean and constant in size, while those of iron gradually rust up and require to be frequently cleaned in order to give a satisfactory light, and are consequently enlarged. Some fish-tail burners are made entirely of a kind of stoneware or of steatite, but these are troublesome to remove when they get broken. The best form of burner is that with a brass body and porcelain top. The fish-tail burner is not suited for burning at a high pressure, under which the two flames refuse to spread out into a flat sheet, but form an irregular flame, at the same time emitting a most disagreeable hissing or blowing sound. This effect may also result from other causes, such as a sharp bend in the gas-supply tube, a speck of dust in one of the orifices of the burner, or, in fact, anything that disturbs the even and quiet flow of the gas.

In testing flat flames, the custom has invariably been to present the flat side to the disc of the photometer; but, although the results so obtained are satisfactory in comparing one flat flame with another, they cannot fairly be compared with rat-tail or Argand flames, which give an equal light all round. The edge of a flat flame gives considerably less light than the side, but the difference between the two depends very much upon the richness of the gas, or, in other words, the opacity of the flame. . . .

As in practice it is found impossible to distribute gas at a pressure of less than 12 or 15-10ths of an inch of water, various contrivances for breaking the force of the gas have been invented. Among union jets of this kind, the simplest, perhaps, is that of Leoni, consisting of a brass and an iron tube, which fit into one another, and between which a thin film of cotton wool is placed. This is a very good burner, but it cannot be depended upon for delivering exact quantities of gas. Bray has constructed a very good burner, similar to those already mentioned, but having a double ply of cotton cloth stretched across a metal ring placed in the tube, in order to relieve the pressure. The same manufacturer has more recently invented another burner, in which the reduction of pressure is attained by passing the gas through an orifice in a porcelain plate cemented into the lower part of the burner. He calls these "Special" burners,

and they are of two kinds—one intended for general use, and the other for street lamps, in which the orifices are somewhat smaller, and in which, consequently, the pressure is further reduced. Morley's patent burner is of brass and vase-shaped, with a porcelain top, and at the bottom one or two small orifices in the metal for admitting the gas. Williamson's jet is similar in principle, but more complicated in construction. Da Costa's burner consists of a hollow vase stuffed with iron turnings, into which an ordinary iron union jet is screwed. There are others, but all have the same object in view, and the simpler and cheaper burners, such as Leoni's and Bray's, accomplish it as successfully as those of more complicated construction, and these have, therefore, been selected for a series of comparative trials, all being made with 26-candle gas. Some of the burners referred to are called regulators, but this is a mere name, for it is obvious that they merely obstruct the flow of gas, the quantity delivered rising as the pressure is increased. In Bray's "Special" burner the two holes forming the "union" jet are placed at an angle of 120°.

In both series of the "Special" burners, in which the pressure is much reduced, the best results are obtained at 1-in. pressure, while, at 5-in., the flames are sluggish, and, in some cases, show a tendency to smoke. This is not the case, however, when common gas is used.

Mr. Holdsworth, of Bradford, has introduced a simple arrangement which he calls a gas-feeder, which has been adopted rather extensively in the manufacturing towns of Yorkshire. It is simply a little wedge-shaped piece of lead pierced in the centre with a hole, the area of which is less than that of the holes in the burner, and this is fixed in the gas pipe several inches from the burner. Several sizes are made, to suit varying circumstances of local pressure, as well as different sizes of burners, and if fitted up by an intelligent workman, they accomplish the end in view very successfully.

Many years ago, Mr. Scholl, of London, adopted the system of placing a small piece of platinum between the two orifices of the union jet, the result being that the initial velocity with which the gas escapes is spent by striking against this plate, and the gas ascends in a somewhat sluggish flame, which, in the case of cannel gas, has a tendency to smoke, and is easily blown about by currents of air. This is the case also with all union jet flames burned at very low pressures, and, practically, a jet of this kind cannot be burned much below 3-10ths or 4-10ths for small sizes, and 5-10ths for large sizes consuming four or five cubic feet per hour. Scholl's "perfecter," as he has called it, has been used extensively in London and other towns for common gas, but it is not suitable for the richer gas used in Scottish towns.

A flame formed by a jet of gas issuing with considerable velocity possesses a certain degree of stiffness, and resists, to some extent, the influence of currents of air. This is particularly necessary in the case of cannel gas, since, whenever the flame is much deflected by air currents, a portion of the carbon arising from the heating of the richer hydrocarbons (*e.g.*, olefines, benzole, &c.) passes off unconsumed, and a smoky flame is the result. In practice, it is necessary to sacrifice a certain proportion of the possible illuminating value, in order to give the flame sufficient stiffness to resist currents of air.

Next to the union jet, the "bat's-wing" is that most commonly used for burning gas. It is simply a little tube closed at one end, in which a straight slit is cut, varying in breadth from about 2-10ths to one millimètre. It is made of cast-iron, brass, porcelain, or steatite; the best form being that having a brass body and steatite top. The flame of the bat's-wing is wider and shorter than that of the union jet, and, in order to be equally effective, requires to be burned at lower pressures. It is particularly adapted for large flames burning from 3½ to 5 cubic feet

of gas per hour. With rich cannel gas (25 to 30 candles) it gives results at least equal to the union jet, and with gas of 18 to 22 candles, it is decidedly superior.

The considerable loss of light experienced when gas is consumed in bat's-wing burners, at any but comparatively low pressure, has given rise to many efforts to combine with the jet an apparatus to reduce the pressure of the gas before it issues from the narrow slit. Various burners having obstructions have been constructed, of which Brönners is one of the best known. It consists of a somewhat pear-shaped brass body, with a steatite top, similar to those of which the results are given above, and at the bottom a small piece of steatite in which is an oblong slot. There are, for cannel gas, six sizes of bodies, the sizes depending upon the area of the slots, and five sizes of tops; and as these screw into one another, there are 30 possible combinations. In none of these combinations does the pressure of the gas at the point of ignition exceed 0.5 of an inch with an initial pressure of 1.5 inch, while in some it is only 0.2, and in some it is so low that the flame smokes and is useless. The rate of combustion is dependent on three conditions—first, the area of the opening at the bottom; secondly, the area of the slit in the burner; and thirdly, the initial pressure of the gas. The range of combinations enables one to select a burner to suit almost any description of gas or any standard of pressure.

For common gas (*i.e.*, of 14 to 16 candles) a different series of tops is provided, in which the areas are considerably greater than in those made for cannel gas, and in which the pressure is reduced to from 0.1 to 0.3 of an inch. These burners cannot be used with cannel gas, although with common gas they are exceedingly effective, and are much in use, especially in London.

Many other descriptions of improved bat's-wings have been constructed, some of which I have tested. The "Clegg" bat's-wing, manufactured by Sugg, has a steatite top, and a conical brass body closed at the bottom, and with a slit cut in it with a fine saw. The respective sizes of the slits above and below determine the consumption of gas and the pressure at the point of ignition. In Silber's bat's-wing, made by the Silber Light Company, one burner is placed above another, both being of steatite, the slit of the lower one being much smaller than that of the upper, and connected by a vase of brass. Only the three smallest sizes of these are suitable for rich cannel gas, the larger ones being intended for gas of lower quality.

Several varieties of regulating bat's-wings have been invented by Sugg, Witthoft, Winsor, and others, the principle of their construction being to check the flow of gas by means of a plug regulated by a screw. At a given pressure in the pipes the burners may be regulated to deliver any desired quantity of gas.

If two bat's-wing flames are brought together, especially if the slits be narrow, the gas of low quality, and the pressure somewhat high, the illuminating power of the united flame is greatly in excess of the sum of the two tested separately. Upon this principle is constructed a double-slit bat's-wing, the slits being about one millimètre apart, which is used in Manchester and other towns in England, and which is an excellent burner for gas not exceeding 20-candle power, but gives a somewhat smoky flame with gas of high quality.

The only other bat's-wing that requires further to be noticed is the patent regulating bat's-wing used in the United States of America, where it was introduced in 1871, and which is practically the only flat-flame burner capable of burning advantageously the "air gas," made by saturating air with the vapour of petroleum spirit. It consists of a very much elongated iron bat's-wing, with exceedingly narrow slit, surrounded by a brass tube at the distance of about 2 millimètres. Into the space between the two, gas is admitted by a wide orifice (the amount being regulated by a screw), and this gas

\* By Dr. William Wallace, F.R.S.E. Read at Society of Arts, January 30th.



ascends entirely without pressure, while the force of the gas issuing from the narrow slit spreads it out into a fine soft flame. This burner gives excellent results with gas of all qualities, but its shape is not adapted to the gas fittings in use in this country, and it has not been used here except for air gas made for private houses.

(To be continued.)

## ADVERSARIA HIBERNICA,

LITERARY AND TECHNICAL.

BETWEEN the date of the finishing of the Castle Chapel in this city (of which Francis Johnston, the founder and first president of the Royal Hibernian Academy, was architect) and 1830, several ecclesiastical edifices in the Gothic style—Catholic and Protestant—cropped up in Dublin or its environs. None of them, however, equalled Johnston's work in the Lower Castle Yard. Although a designer of buildings mostly in the Classic style, the architect of the Castle Chapel proved that he was not unacquainted with the details of Pointed architecture. His labours in this direction, though comparatively small compared with his other works, are sufficient to entitle him to be called the father of the Irish Gothic Revival. St. George's Church is an imposing structure, but in it are combined the Classic features or forms of the Greek orders, with the steeple and spire of mediæval times. Richness is observable in one place, dwarfing simplicity in another, and there is a lack of unity or harmony in the whole—at least to the educated architectural eye. Apart from these defects, St. George's Church as a piece of workmanship is excellent in execution.

The suburban Gothic churches of Dublin, erected during the period above indicated, have little to boast of; indeed up till the year 1840 our Gothic churches in the neighbourhood of Dublin were almost all poor efforts, barren in true Gothic details, and destitute of fitting ornament. The great majority, if not all, of them evidence what has been called "Carpenter's Gothic." The cause of this poverty in design and details has its explanation in the fact that the style was new to our native architects, and none of them had sufficiently mastered its belongings. The taste for the Gothic had not sufficiently leavened the people, and the clergy of both creeds moved timidly and slowly. There was also a want of funds to erect imposing edifices; consequently, the churches were small in size as well as *jéjune* in character. Several of these first efforts in the Gothic style can be seen and examined in the environs of Dublin. Pointed doors and windows without mouldings, or, where exhibited, of the slightest kind, and a spire like a long, lank candle extinguisher surmounting a body as unadorned as itself. The Church of Kilternan, Co. Dublin, and that at Simmons-court, erected nigh half a century since, afford specimens of the Gothic style then in fashion, but they are far from being the worst of their kind, viewed from our present standpoint.

The erection of the above-named and other churches of the time in Dublin suggested the following remarks to a topographical writer of the day. Indeed we believe what we quote may be safely put down as the opinions of the late George Petrie:—"We do not mean to deny that, independently of religious considerations, these churches are pleasing objects in their general effect, and that their slender spires are appropriate, and add beauty and interest to the pastoral scenery of the county; but when examining them in a closer view there is as much to offend as to please the taste. With one or two exceptions they are all in the one style—a kind of novel and nondescript Gothic, unlike every known ancient remains, and exhibiting as little skill in the harmonious arrangement of their parts as acquaintance with the true forms of the Pointed style of architecture. These remarks apply equally to the Roman Catholic churches in the Pointed

or Gothic style recently erected in this diocese, but with this difference, that as they are generally of a simpler and less expensive construction, their faults are less glaring."

What follows proves that the writer was no mere observer, but one pretty well versed in his subject; that he knew the province of the architect as apart from the builder, and was otherwise acquainted with the history of architectural styles, as well as the architectural antiquities of his own country: "It should be understood that the architecture of a country is the truest criterion by which its taste in art can be estimated, because, though the painter and sculptor may be supported and fostered into eminence by individual taste, the architect is patronised by communities. And until the public taste be so far improved as to enable it to discriminate between the characteristics of a genuine architect and a mere builder, we can expect no public edifice worthy the character of a refined nation. And we particularly desire to impress, that the church architect should not be only a man of taste and science, but also an architectural antiquary, intimately acquainted with all the peculiarities that characterise the different ages and styles of Pointed and Old English architecture, which are, in fact, as well marked as those of the Grecian Orders; and that he should never be allowed an *ad libitum* licence to indulge the fantastic vagaries of an eccentric taste in violation of all the acknowledged principles of correct architectural style."

We have before us an early drawing (1832) of the Roman Catholic church in Francis-street, which is still unfinished. Like George's Church, a Gothic spire was here intended to rise out of a Greek portico; and in reference to this intention the writer above quoted observed:—"A union which destroyed the effect of both, and which is at variance with every principle of correct taste. As it is not yet too late, we indulge in the hope that this error will be corrected,"—a good advice, which deserved to be followed. On the north side of the city as well as on the south we might point out several of these Gothic churches to which our foregoing remarks are applicable, and also schools whose sole Gothic consists in pointed windows with metallic sashes, diamond-paned, and entrance porches as painful to the sight as they are pointedly objectionable for their stuck-up and "stuck-on" and often stucco-overed features.

The Ballycastle Collieries are believed to be the oldest in Ireland; but, whether or not, they afford a proof that the mining industry existed in this country centuries anterior to the date we otherwise would be inclined to assign to it. All coal getting does not necessitate the sinking of deep shafts, for in some British coal districts opens have been cut into the mountain height, or elevated strata from the side. Hamilton, in his "Letters on the Antrim Coast"—a work written many years ago—furnishes some very interesting particulars of a discovery made by the miners at the Ballycastle pits in the last century. He writes:—"About the year 1770, the miners in pushing forward an adit towards the bed of coal, at an unexplored part of the Ballycastle cliff, unexpectedly broke through the rock into a narrow passage, so much contracted and choked up with various droppings and deposits on the sides and bottom, as rendered it impossible for any of the workmen to force through, that they might examine it further. Two lads were, therefore, made to creep in with candles for the purpose of exploring this subterranean avenue. They accordingly pressed forward for a considerable time with much labour and difficulty, and at length entered into an extensive labyrinth, branching off into numerous apartments, in the mazes and windings of which they were completely bewildered and lost. After various vain attempts to return, their lights were extinguished, their voices became hoarse and exhausted with frequent shoutings, and at length, wearied and spiritless, they sat down together in utter despair of an escape from

this miserable dungeon. In the meantime, the workmen in the adit became alarmed for their safety, fresh hands were incessantly employed, and in the course of twenty-four hours, the passage was so opened as to admit some of the most active among the miners; but the situation of the two unhappy prisoners who had sat down together in a very distant chamber of the cavern prevented them from hearing altogether the noise and shouts of their friends who thus laboured to assist them. Fortunately it occurred to one of the lads (after his voice had become hoarse with shouting) that the noise of the miners was often heard at considerable distances through the coal works; in consequence of this reflection he took up a stone which he frequently struck against the sides the cavern, the noise of this was at length heard by the workmen, who, in their turn, adopted a similar artifice; by this means each party was conducted towards the other, and the unfortunate adventurers extricated time enough to behold the sun risen in full splendour, which they had left the morning before just beginning to tinge the eastern horizon."

In reference to the above caverns, Mr. Hamilton tells us further that "on examining this subterranean wonder it was found to be a complete gallery, which had been driven forward many hundred yards to the bed of coal; that it branched off into numerous chambers where miners had carried on their different works; that these chambers were dressed in a workmanlike manner; that pillars were left at proper intervals to support the roof. In short, it was found to be an extensive mine wrought by a set of people at least as expert in the business as the present generation. Some remains of the tools and even of the baskets used in the works, were discovered, but in such a decayed state that on being touched they immediately dropped to pieces. From the remains which were found there is reason to believe that the people who wrought those collieries anciently, were acquainted with the use of iron, some small pieces of which were found; it appeared as if some of their instruments had been thinly shod with that metal." Taking every circumstance into view in connection with this country, civil and political, Mr. Hamilton was of opinion that the colliery must have been worked at a very remote period or more than one thousand years previously. He thus argues for the early civilization of the inhabitants of Ireland, and their acquaintance with the sciences and arts at a period which some writers were only too anxious to prove that the inhabitants were little better than savages.

The annals of Ireland and our MS. materials of Irish history go to prove that the artificers among our Pagan forefathers were more civilised and skilled than many of those living when the Christian era had considerably advanced.

Many curious legislative and corporate enactments exist on record in Ireland as well as in the sister kingdom. No doubt when some of these were made, the framers or committees considered themselves very wise. In the town books of the Youghal Corporation among other singular entries, in 1680 and in 1700, a cook and a barber were made freemen on condition that they should severally dress the mayor's feasts and shave the corporation—gratis. This condition in the case of some of our modern cities would, we opine, be a rather expensive one to a cook or a barber. The shaving of a number of aldermen and common council men daily would occupy a good deal of time, a number of assistants, and a large expenditure of soap, clean towels, &c. Shaving a lord mayor gratis might compensate a barber for the honour of freemanship, but to shave—say the Dublin Corporation gratis—oh! horror of horrors.

The following piece of native legislation is certainly a "bull" of the Irish Parliament. In 1784 a bill intended to limit



the privilege of franking (or freeing letters) was sent for the royal approbation across channel containing a clause enacting that any member who, from illness or other cause, should be unable to write, might authorise some other person to frank for him, provided that on the back of the letter so franked, the member doth at the same time give under his hand a full certificate of his inability to write. How was the member to do this, we wonder. This clause would be worthy of the member of the Irish Commons whose bird had the power of ubiquity. The knight, or owner of the bird, could write, but let us suppose he was too ill or "toxicated" to do so, might not his head butler write his master's name "pro Sir Boyle Roche (his X mark)." Surely Sir Boyle could make a cross, supposing that he was too indisposed by his failings otherwise to hold a pen stiff enough in his fingers. What, then? Would not the cross be as good an endorsement on the back of a letter as many of those which are now receivable from the illiterate who cannot write, sick or well, drunk or sober? But we joke, that is, perhaps on account of our taking an Irish "bull" by the horns.

H.

### THE ELECTRIC LIGHT APPLIED TO LIGHTHOUSE ILLUMINATION.\*

THE author showed the progress of lighthouse luminaries from wood and coal fires to the introduction of tallow candles, fatty oils, mineral oils, coal gas and electricity. In 1839 experiments were made by Faraday, for the Trinity House, at the Orford Low Lighthouse, with the Bude light, and, in 1862, at the South Foreland with the Drummond or lime light, but the results were not so satisfactory to lead to their adoption. In 1857 experiments were tried at Blackwall with the electric light, produced by the first magneto-electric machine of Holmes; and on the 8th of December, 1858, the electric light, obtained by Holmes' second machine and a "Duboscq" lamp, was shown on the sea for the first time from the South Foreland High Lighthouse.

On the 1st of February, 1862, the Trinity House exhibited the electric light permanently at Dungeness Lighthouse, by Holmes' magneto-electric machines and lamps. The works for the production of the light were described, and the first cost and maintenance given. The intensity of the electric luminary was about 12½ times that of the oil luminary. The cost per unit of light per hour was 0.1165d. for the oil, and 0.1294d. for the electric light. Frequent falling off of the latter light occurred, and the oil light had occasionally to be substituted. Shortly afterwards the French lighthouse authorities established the electric light at Cape La Hève, with the magneto-electric machines of the Alliance Company of Paris. In 1867, Holmes further improved his machine and lamp. Two of these machines and lamps were exhibited by the Trinity House at the Paris Exhibition of 1867, with a dioptric apparatus of the third order. The Souter Point Lighthouse was lighted by electricity in January, 1871. The light was adapted to a dioptric apparatus of the third order. A lower light from the same luminary as the upper one was adopted here for the first time. The optical apparatus for both lights was designed by Mr. James T. Chance, M.A., Assoc. Inst. C.E. A "Holmes" fog trumpet apparatus was also worked from the same engines as the electric light apparatus. The total cost of the works was £18,000. The cost of the electric luminary per candle per hour was 0.056d., being rather less than half of the cost per unit at Dungeness. The maximum intensity of the beam from this apparatus was about 700,000 candles. The Trinity House next established the electric light at the South Foreland High and Low Lighthouses, in January, 1872. The apparatus for the production of the light consisted of two steam engines of 20 effective h.p.,

four Holmes' improved magneto-electric machines and lamps, and two dioptric apparatuses of the third order for fixed white light. The cost of the additional works for these lights was £14,800. The intensity of the full power beam from the High Lighthouse was about 20 times that of the old first dioptric oil light. The relative cost per unit of light was as 100 oil to 30.6 electric. In 1873, the Trinity House adopted, for the Lizard Lighthouses, Siemens' dynamo-electric machine and lamp, and a siren fog signal. These were driven by three of Brown's calorific engines, each of 10 effective h.p. The cost of the additional works for these lights was £14,936, and the annual maintenance, including interest on first cost, amounted to £2,365 6s. 4d. against £1,016 7s. 11d. for the oil lights. The intensity of the full power beam of each light was about 330,000 candles, being about 21½ times the intensity of the oil light. The relative cost per unit of light was 100 oil to 14.04 electric. The successive improvements in the electric machines, and in the means of driving them, had reduced the cost of the electric light at the Lizard to one-ninth of that at Dungeness, and the quantity of light produced at the Lizard per pound of coke consumed was increased 20 times.

The continued growth seaward of the shingle point at Dungeness led to the removal, in 1876, of the original electric light apparatus, and the substitution of a low flashing oil light and siren fog signal for both lighthouses.

The author furnished information received from M. Allard, Director-General of the French Lighthouses, relative to the electric lighthouses at Cape La Hève and Cape Grisnez, where Alliance magneto-electric machines and Serrin lamps had been adopted. It was intended to exhibit the electric light in the present year in a new lighthouse on the Isle of Planier, opposite Marseilles, and it had been decided to substitute the electric light for the oil light in the Palmyre Lighthouse at the mouth of the Gironde. Some information was also given relative to the electric lighthouses at Odessa and at Port Said, these making ten in which the electric light had already been established.

The comparative cost and efficiency were shown of lighthouse luminaries produced by all the agents at present employed, viz.:—oil, coal gas, and electricity. Coal gas, on Wigham's system, was applied to the Howth Bailey Lighthouse, Dublin Bay, by the Commissioners of Irish Lights, in June, 1865, and it had since been extended to seven lighthouses on the coast of Ireland. In 1872, the Trinity House adopted it at the Haisborough High Lighthouse. The additional cost of the works necessary for the introduction of gas at this station, was £1,996, and the annual maintenance of the gas establishment, including interest on first cost, &c., amounted to £832 4s. 3d. This light had a mean intensity of 1,173 candles, and a maximum intensity for thick weather of about 2,923 candles. In 1877 the necessary additions were made for lighting the Low Lighthouse (distant 766 yards), by gas from the same works, at a cost of £1,296. The system of Mr. Wigham had been further developed by introducing the flames of two, three, and four, large burners over each other in the axis of the dioptric apparatus. In January of last year the Commissioners of Irish Lights adopted one of the latter lights in a new lighthouse at Galley Head, near Kinsale. The maximum intensity of the four burners combined for thick weather was about 5,012 candles. The author next gave statements, showing the comparative focussing compactness of the lighthouse luminaries which had been referred to, for utilizing in optical apparatus, viz., the lights produced by oil, coal gas, and electricity. The focussing superiority of the electric luminary, compared with the best of these, was as 616 to 1. Statements were given of the comparative average cost and annual maintenance of a single lighthouse (shore station) in this country, with colza oil, mineral oil, coal gas, and electricity, as the

illuminating agents, both with and without a first-class 20 h.p. siren fog signal. For a maximum degree of light equal to the single or combined intensity of the luminaries of the Lizard, the cost of the more perfect electric luminary per unit of light provided was about 13.22nd and 6.22nd respectively of that of coal gas, and about 13.65th and 6.65th respectively of that of mineral oil, at their maximum intensities. With higher intensities of the electric luminary the cost per unit would be more in its favour, no further addition to the working staff being necessary.

From experiments by Faraday for the Trinity House, in 1836, relative to the penetrative power of lights, through such obstructions as fog, mist, &c., and the more recent experiments by the French Lighthouse Authorities and by the Trinity House, with oil and electric lights, it might be assumed that, with the atmosphere so impaired for the transmission of light, that the oil luminary at its maximum intensity, would be fairly visible at the fog signal range of two miles, the electric luminary at its double Lizard intensity of 16,500 candles, would be visible at about four miles. Further, that on more frequent occasions, when the oil luminary would be visible at about 8½ miles, the electric light would be visible at the full range of seventeen miles.

### ALLIANCE AND DUBLIN CONSUMERS' GAS COMPANY.

IN the report submitted to the shareholders yesterday for past half-year, the directors state "The gross revenue, with interest, amounts to £128,693 19s. 5d., the expenditure being £87,193 2s. 6d., including bond and debenture interest, leaving a net gain on the half-year's working of £41,500 16s. 11d., from which the directors advise the payment of dividend at the rate of 10 per cent. per annum, free of income tax. By adopting this recommendation a sum of £29,500 will be absorbed, leaving a balance of £12,000 16s. 11d. to be added to the amount brought over from the previous account, making a total of £32,404 14s. 9d. to be carried forward. Under the head of loan capital, it would appear that the amount has been reduced by a sum of £10,500; such, however, is only temporary: the difference arises from the circumstance that early in November last bonds to the above amount, bearing interest at 4½ and 5 per cent. per annum, fell due. The bank rate at the time being 6 per cent., the directors considered it advisable to redeem the bonds, and stay their re-issue pending a reduction in the rate, which they are pleased to say has since taken place, and thus they were enabled to re-issue them for a short period. The holding over of these bonds accounts for the overdraft at the company's bankers at the close of the half-year. The directors are glad to state that the prosperity of the company justified them in making the further reduction in the price of gas of 3d. per 1,000 cubic feet, taking effect from last January."

### ARTANE INDUSTRIAL SCHOOL.

A VISIT was paid on the 20th ult. by the Lord Lieutenant and the Duchess of Marlborough and suite to this extending institution, where they were met and awaited upon by a number of public personages. According to a description in the *Freeman* great progress is observable in every direction. The reporter in our morning contemporary, among other matters, makes some allusions to the buildings at Artane. He writes:—

"It would be indeed difficult to visit Artane without feeling an interest in its fortunes and a pride in its management. Every year marks some new stage of progress. Its managers never rest idly on their laurels. A new plan, a new industry, a new building is for ever cropping up, and never without an imperative call for it. From the collection of wooden huts in which the community began their work has sprung up a solid and magnificent pile surrounded by busy little hives of labour,

\* By Mr. J. N. Douglass, M. Inst. C.E. Read at Institution of Civil Engineers, London, on the 25th ult.



fitted with a hundred ingenious resources of machinery, the newest in the market. Even since the Viceroy's first visit to Artane the place has undergone a wonderful transformation. Then the new buildings were but just rising. First a wing was roofed in and furnished, and its completion was, with the slender funds at the disposal of the community, esteemed a wonder. Now the central and southern wings have arisen to the roofs. Another effort, and the whole massive design—chapel, refectory, school-rooms, and all—will have been accomplished in finished beauty. A little while ago portions of the workshops had to put up with such primitive little sheds as were run up in the first hurried days of the school's existence. Now these have been abolished, and a handsome new range of lightsome timber workshops, with felted roofs, has been added to the little street of them that already extended to the rear of the house of residence. New branches of industry have been launched out into. What is more important, old branches of industry have thriven and paid. The sale of the materials manufactured in these various workshops not only reimburses the cost of procuring for the youngsters instruction in industrial employments, but yields a handsome margin of revenue besides to the institution. How various those occupations are cannot but be pretty well known by this time. Everything connected with the feeding and clothing of the 700 boys who are always within the walls is produced or manufactured by their own labour—the cloth that makes their jackets, the boots on their feet, their furniture, their bread, their farm-yard tools, their masonry. Their cloths and tweeds enjoy a widespread reputation, their furniture is of wonderful durability; their tailors, tinsmiths, and blacksmiths fulfil large contracts with great city houses, and fulfil them to the entire satisfaction of their customers. Not alone are the schools themselves the very pictures of healthy and intelligent industry, but from their doors pour out hundreds of boys who carry out with them into the world an amount of solid knowledge which is an easy passport to success in their various employments."

This is a pleasing industrial picture, and we trust, for all our sakes, it is a faithful one. It will afford us pleasure to corroborate it perhaps when time affords us an opportunity for visiting the Artane institution.

## INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

The monthly meeting of this body will be held to-morrow (Wednesday) evening in the Museum Building, Trinity College. A paper will be read by Mr. W. G. Strype on "Improvements in Sulphuric Acid Manufacture."

## CORRESPONDENCE.

### THE MACHINERY OF GAS TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

RODERICK—Down with the corporation. Citizens, shout—Down with the tyrants!—*Warden of Galway*, act v., scene 1.

SIR,—During the first representations of the tragedy of *The Warden of Galway* on the boards of Hawkins-street Theatre, the above exclamations by the actors representing the excited citizens assembled in a Galway street were nightly rewarded by the audience with repeated and prolonged rounds of applause. It was very well understood at the time that the applause so given was in condemnation of the Dublin Corporation of the period, for the thorough contempt of public opinion displayed by that body in forwarding their own selfish interests or in carrying out their reckless acts of jobbery had at last roused the indignation of the intelligence of Dublin, and the present Corporation are seemingly endeavouring to merit a similar expression of public opinion.

For the acts of the "Old Corporation" some excuses may be found. Their public meetings were seldom held, and the business done at them was but imperfectly reported. The citizens of Dublin then having a legal interest in the disposal of corporate property were proportionately few, many of them being illiterate, and any act of jobbery perpetrated by that body had at least the recommendation of being respectable in the amount of its money value. None of these excuses can be put forward for the present Corporation, the members of which, no matter how recently elected to office, would seem to be "old fogies," and to be in possession of a greater amount of contempt for public opinion than the members of the old Corporation ever had the opportunity of displaying. An example of this is given in the reports of the last monthly meeting of the Municipal Council.

At that meeting a motion was made by Councillor

French to have paid into the Corporation funds a sum of £500 lying in the hands of the Gas Company since 1874. The payment of this sum by the Gas Company to the Corporation in lieu of their expenses incurred in giving a mock opposition to a bill promoted by the Gas Company was sanctioned by Parliament; but although the amount of these expenses was borrowed from the city funds, the £500 was never utilised for the repayment of it. After some discussion the motion was lost, 23 members voting against it, Mr. French only voting for it.

During the debate, Councillor Gray, in opposing the motion, is reported to have stated "that the Corporation promoted a bill in 1873, and the costs of that bill remained to this day unpaid. There was no doubt whatever upon his mind that this £500 was honourably intended to go towards the payment of those costs: it was a question of endeavouring to preserve the honour of the citizens." If Mr. Gray will read the report of the awarding of this £500 as it appears in the *Freeman's Journal* of the 8th of May, 1874, his opinions (if they are his) will be greatly changed. But in what way is the honour of the citizens involved in the non-payment of these costs? Mr. Gray might have been so candid as to state the fact that in 1873 the Corporation promoted two gas bills in opposition to the unanimous protest of the ratepayers, who promptly signed petitions to Parliament against them; and if the 33 members of the Corporation who voted for the promotion of those bills do not pay out of their own pockets the costs incurred in their abortive, selfish scheme, the dishonour lies on them and not on the citizens or the ratepayers, to repay whose money this £500 was allotted. When any matter connected with the gas question is debated at the Corporation meetings, truth is humbled, hypocrisy and tact exalted, because the Corporation in reality is the municipal department of the Gas Company. As a proof of this, the notice of the amount of pressure on the gas supply published weekly in the Corporation reports is much lower than that given in the weekly reports of the Gas Inspector to the Board of Trade.

The burgesses of Mountjoy Ward have reason to be proud that Mr. French represents them in the Corporation, for to his persevering exertions is mainly due the merit of unmasking this mean plot of sharing among 33 members of that body the £500 in question. It would only have amounted to about £15 each—a sum that would be too paltry for the notice of the aldermen and "common scoundrels" of the "Old Corporation." They have also reason to be thankful to that Providence who permitted the employment of agents at the revision of the burgess roll, careless in spelling correctly the name of a ratepayer, for to such an occurrence are they chiefly indebted for not being represented by a transparent humbug at the *original debates* of the Cork-hill Home Rulers.

JAMES KIRBY.

29th March, 1879.

## NOTES OF WORKS.

The chancel of St. Stephen's Church, Mount-street, is to be decorated by Mr. R. Mannix.

The design submitted by Mr. Henry Chappell, C.E., Newtownards, has been selected in competition "for laying out and embellishing the new cemetery at Movilla," and the Burial Board have awarded him the premium. Nine competitors sent in designs.

The Dublin Coffee Tavern Company will shortly open their first establishment in Capel-street, having purchased the extensive premises lately occupied by Messrs. Kerr and Son. The hall on ground floor is 120 ft. 6 in. by 29 ft. wide, and will have platform for music, &c., at one end, the remainder of space being divided into two by a partition, forming outer and inner bars. The fittings are being executed in pitch and yellow pine and American walnut, tinted glass and lead lights being extensively used. Mr. Albert E. Murray is the architect; Mr. J. Pile contractor. The expenditure will be about £1,000.

The premises of "The Telegraph," Newry, have recently been enlarged and improved, so as to provide accommodation for an increased staff of workmen. The roofs and floors of former machine and news rooms have been removed and much increased in size and height, and the floor of machine room is formed of large thick flags, so as to stand the weight of the superior and costly printing machines which have been intr-

duced. Additional space is added to the jobbing department, and the editor's room is made more comfortable and private than heretofore. New front and back offices are conveniently arranged next Hill-street, as well as distinct private ones for proprietor. Abundant light and ventilation have been obtained, and proper attention given to other sanitary matters. A caretaker's house is erected at rear for use of watchman. The former old sashes in front, as well as beams and storey-posts, were taken out and new ones put in, the sashes being wrought, carved, and moulded, and, together with pilasters, having richly-carved caps and moulded bases and boldly-moulded entablature over, and neat iron cresting on edge and massive stop blocks at ends. The sashes are glazed with polished plate-glass, and spandrels are filled with ornamental wrought-iron scrolls. The work has been executed in a very creditable manner according to plans and designs and under the superintendence of the architect, Mr. William Batt, M.R.I.A.I., of Belfast, by Messrs. Wheelan and Watson, of Newry, contractors.

## HOME AND FOREIGN NOTES.

A CURIOUS LOG OF MAHOGANY.—A donation was lately made to the Museum of the Edinburgh Royal Botanic Garden, by Messrs. Whytock and Reid, of a section of a log of walnut received from the Mediterranean, in which are completely embedded several large stones.

JERRY BUILDING AND THE NEW BUILDING REGULATIONS.—The "Jerry" builders of London, smarting under the late Building Amendment Act and anticipating "harder lines" under new by-laws proposed by the Metropolitan Board of Works, are up in arms, and have held a meeting and formed a body which they have the effrontery to call the "Suburban Builders' Association." Suburban "scampers" they are no doubt, but this make-believe body does not include the respectable suburban builders of the metropolis. *Jacta alea est "Jerry."*

THE MEDICAL ACT (1858) AMENDMENT BILL.—We are glad to see by the report of proceedings in Parliament that Dr. Lush's bill has been shelved. It was promoted in the interest of a narrow and intolerant section of the medical professors, who desired to create a monopoly of practice and render illegal all kinds of curative medicine unless administered by them. We desire to put down quacks of all kinds, but we would be sorry to see people prevented of availing themselves of the aid of bone-setters, or compelled to take mineral instead of herbal medicine whether they believed in its efficacy or not.

"THE CROSS OF CONG."—From a circular just issued by Mr. Henry O'Neill, artist, we learn that he proposes "if he can get sufficient encouragement," to produce a print of the Cross of Cong the full size of the original, and in its various colours. Among the numerous and beautiful Irish works in decorated metal which are in the Museum of the Royal Irish Academy, the Cross of Cong holds a foremost place, not only for its size, but also because it is a production in which are displayed the highest qualities of decorative art. The price of the print which will be executed in the best style will be four guineas. We shall be happy to receive the names of intending subscribers, and aid in every way this veteran native artist.

ARTESIAN WATERWORKS.—Duhlin and provincial water-drinkers, and waterworks "tinkers," might take a lesson from what has been accomplished at Leamington, in the sister kingdom, where a new artesian waterworks has been opened at the cost of £20,000. There are two large shafts, with bore-holes at the bottom of each, and altogether a supply of about a million gallons of water per day, pronounced by Dr. Bostock Hill of excellent quality, has been secured and is now being furnished to the town. The old supply was from the Leam and frequently caused dissatisfaction. There was great rejoicing in the town on the 11th ult., in connection with the opening ceremony. A large procession accompanied the mayor to the works, saw him receive the keys from the contractors, and returned home rejoicing. They had reason. When will London and other English and Irish cities and towns be able to rejoice over a supply of tolerably pure water? Let the temperance reformers think of it. The excuse for drinking half the beer and sp. consumed is that the water supplied is unfit for drinking and dangerous to health.



**THE MOORE CENTENARY.**—At the last meeting of the Centenary Committee, with a view of affording some advantages to the subscribers, the following resolution was moved:—"That all subscribers of £1 and upwards be entitled to free admission to the literary and musical entertainments on the centenary day." After some discussion the resolution was adopted with the following addition—"Provided the musical committee can make satisfactory arrangements with the musical gentlemen." A circular to the ladies of Ireland, and the advisability of having some representation of the fair sex on the committee was referred to the executive committee for consideration.

**A CAUTION TO JERRY BUILDERS.**—The Edmonton Local Board have this week been instrumental in making an example of a builder in Tottenham, who was found erecting houses in that locality, and using a compound which could not be called mortar. The builder in question, Frederick Bryen, was summoned before the Edmonton magistrates, at the Petty Sessions, on Monday last, for an infringement of the building requirements of the Local Board. Mr. Crowne, clerk to the Board, appeared in support of the summons. Mr. De Pape, surveyor to the Local Board, stated that he had visited the houses, now nearly built, and found that the defendant, instead of using the quality of mortar required by the Board, was making use of a substance consisting for the most part of road sweepings. There was a very trifling admixture of what he should call mortar, but the chief ingredient was nothing more than street sweepings, and altogether unfit to use for building. No house could be safe in which such a substance was used. The magistrates severally condemned the conduct of the defendant, and fined him £5 with costs, expressing their regret that they could not inflict a heavier penalty.—*Builder.*

**SANITARY REGULATIONS.**—The North Dublin Union Sanitary Authority are giving effect to the order of the Privy Council respecting cow-sheds and dairies. They have issued a printed code of regulations as to the construction and maintenance of cattle-sheds for dairy purposes. They require that each shed shall be well lighted and ventilated; that the floor shall be properly asphalted, flagged, or bricked, and drained, so as to ensure cleanliness. They also require that every animal shall have standing room of not less than 6 ft. by 3 ft., exclusive of passage and crib or manger, and not less than 400 cubic feet of air. Special precautions are to be observed as to the places in which manure-heaps and grains are to be kept, so as to prevent the accumulation of manure for more than two days, or pollution of the air of the sheds where cattle are kept. Fear of contact with diseased animals is carefully guarded against, and the number of cattle in each yard must be distinctly stated on a board over the entrance. No pigs or young stock will be allowed to be reared in a place for keeping dairy cattle. There are also regulations as to the cleansing of milk shops daily, and the preservation of milk from any contamination.

**AN OGAM INSCRIPTION.**—The forthcoming part of the "Transactions" of the Royal Irish Academy in their department of Polite Literature and Antiquities will be devoted to a memoir, by the Lord Bishop of Limerick, on a most remarkable Ogam inscription, found on a stone monument from the Killeen of Aghlish, a disused burial ground, in the parish of Minard, Co. Kerry. Dr. Graves thinks for twelve or thirteen centuries that it had stood at the head of a Christian grave, but recently, to save it from being carried away by some mason in want of a lintel, it had been removed to the Museum of the Academy, where, it is to be hoped, it will find for all future time a resting-place. The monument, in addition to the Ogam inscription, has also inscribed upon it the cross known as the Irish cross. The outline of this cross is formed not by straight lines, but by arcs of circles, and the cross itself is surrounded by a circle. Examples of it occur on fifth or sixth century Christian monuments in Ireland, and it may be seen worn on the breasts of Irish children on every anniversary of St. Patrick's Day, whence it is often called Patrick's Cross. The question of the probable origin from an Eastern source of this form of cross is discussed in the memoir. There is also to be found on this monument a remarkably disguised form of a cross, known to antiquaries as *swastika*, a form which only appeared in the Roman Catacombs towards the end of the third century, and held its ground on the monuments of the fourth. Into Ireland it was probably introduced in or soon after the time of St. Patrick. The Ogam characters are distinct, and the Bishop has little doubt as to reading them as follows:—"MAQI NAQA—APILOGDO," the first two words being on the right, the third being on the left hand side of the stone.

### TO CORRESPONDENTS.

Correspondents in general and particular will excuse for the nonce for any seeming neglect on our part in attending to their communications; but pressure of time and space prevents us in attending to their wishes on this occasion. RECEIVED.—R. H. A.—J. B. (Cork)—An Architect—J. R. (Birmingham)—E. C.—M. D.—H. B.—A Manufacturer (London)—C. E. (Glasgow)—A Lady—G. H. F.—T. C.—A Citizen.

### NOTICE.

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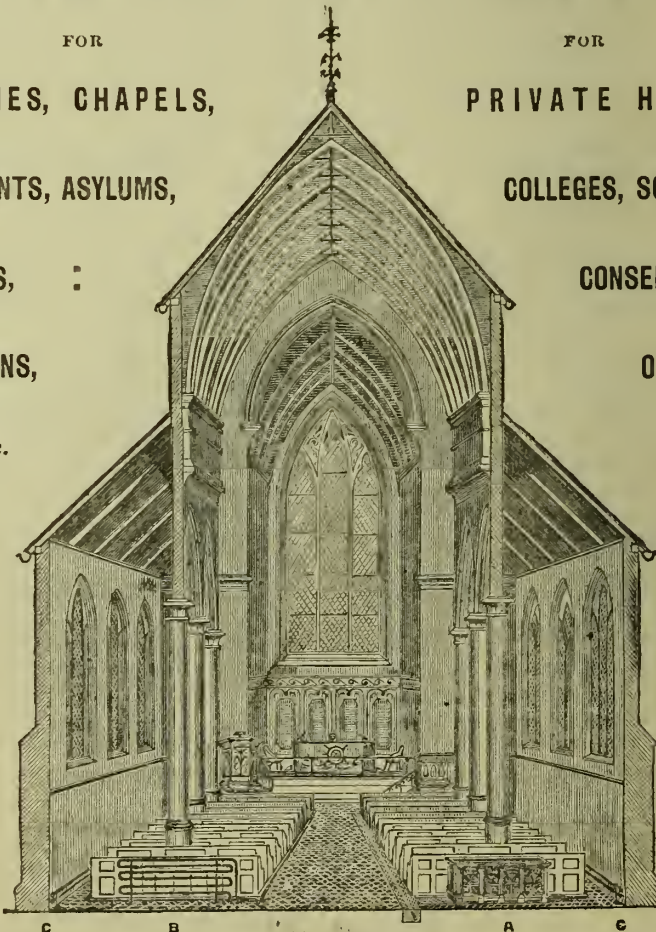
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## Illustration.

DESIGN FOR SEMI-DETACHED VILLAS.

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## THE IRISH BUILDER.

VOL. XXI.—No. 464.

## CITY DECAY AND SUBURBAN IMPROVEMENT.

THE Borough Engineer has stated before the Boundary Commission Inquiry that, from the decline in the value in house property in parts of the city, it was absolutely necessary to take in certain suburbs in order to provide a rate to maintain the streets of the city. This is a serious and humiliating municipal admission, and, however sad, it deserves consideration. It would not be difficult on our part, or on the part of others who are long acquainted with the municipal history of Dublin, to trace effects to causes which are well known. We are not desirous just now of using severe language towards the past and systematic shortcomings of our Corporation, particularly as we have always dared to speak independently and to attack a bad system whenever possible, apart from the individuals whose inaction and neglect was the chief cause of the lasting and admitted evil. Dublin in a portion of its southern city quarters has, no doubt, been decaying from the first decade of the present century, consequent on the great decline of the weaving industry; but in the days of the old Corporation, notwithstanding many of its patent jobs, the house property of the city was most valuable interest on all sides. The city merchants and traders for the most part dwelt in their town-houses over their offices and shops, and thereby contributed largely to the rates and taxes, besides giving a large amount of employment to the members of the building trade and kindred branches.

During the last forty years, or since the advent of the Reformed Corporation, the city has greatly extended, or, rather, the suburban

districts have become the new Dublin, though outside the municipal boundary. The southern suburbs—Rathmines, Ranelagh, Rathgar, and contiguous localities—have absorbed a large portion of the city's population in addition to their own permanent and local ones. Merchants and respectable traders have migrated in thousands with their families to the southern suburbs, and the seaside localities extending from Sandymount to Kingstown and Dalkey, and latterly to Bray. Another wave of migration is within the last few years moving slowly but steadily to the northern suburbs. Merchants and traders still have offices, shops, and stores, in the city, but only the less wealthy permanently reside in the city, and the old mansions once inhabited by the nobility, gentry, and respectable traders, are growing yearly more and more dilapidated, and are being occupied as tenements, and owned by speculating landlords who do as little as possible towards their repair or maintenance.

Now we boldly state—and we challenge contradiction—that one of the chief causes of the decay of house property in the city is bad municipal administration in the past, and heavy rates. The Corporation itself must admit that for a number of years, and even up to the present hour, the sanitary condition of the city was deplorably bad. Bad roadways succeeded bad drainage, and bad scavenging followed suit, culminating in a high rate of mortality, the combined effect of several contributory causes akin to each other. Persons have not left the city for fashion sake alone, but to escape disease and high rates. If forced through business to run the gauntlet, fathers of families, if they could not ensure their own positive safety, have at all events taken the precaution of ensuring the safety of the members of their households. There was not, to be sure, always danger to be apprehended; but Dublin has been visited in recent years with a succession of epidemics—cholera, fever, and severe small-pox visitations. Heavy taxation, therefore, coupled with the bad sanitary condition of the city, contributed to a great extent to the emptying of it of its wealthy resident population, and the tide of fashion that set in upwards of thirty years ago contributed also to the same end.

It may be now asked, Is it wise, is it honest, is it creditable to the Corporation, whose own bad management has so powerfully contributed to the decay of the city property, to endeavour by special enactments, to include large areas of the improved suburban localities in the municipal boundary, for the sole purpose of making good the loss their neglect has occasioned? Should the townships in part be absorbed that money may be raised to repair the city streets, improve the city drainage, and, as a natural sequence, pay the salaries of the civic officials? Under ordinary circumstances it may be admitted that the Corporation of a city is justified in extending its boundary, and making those who raise their chief income from business in the city to contribute a quota towards its maintenance and improvement.

In London, the City proper is but a small portion of the metropolis, but it is by far the wealthiest area, considering its house property and the value of land, fabulous prices being obtainable every day for a few square yards. True, in the City of London too,

the old and resident merchants and wealthy tradesmen have migrated for many years past to the suburban districts for several miles, coming in daily to business by express morning trains which are run on purpose by railway companies to suit the wants of the city men. But if merchants and large tradesmen with their families do not reside in the city, the value of property in London, unlike Dublin, has shot up immensely. The Corporation has carried out large improvement schemes; palatial offices, chambers and business premises are erected and are still being erected on all sides wherever available space offers. Old house property is pulled down daily, and in a few weeks' time large and ornamental buildings take their place, for which very high rents are obtainable. The sanitary condition of London is well attended to, and, though we would like to see the authorities there paying more consideration to the wants of the working classes in respect of providing dwellings for those dispossessed by improvement schemes, still on the whole London is an example for Dublin to follow even on a small scale.

The house property north and south of this city must continue to deteriorate year by year so long as our municipal body is actuated by the motives which now move them—aye, and we must candidly add, as long as the greater portion of our municipal members are entirely unfitted for their position, through want of practical knowledge, training, or that experience which is needed for dealing with a variety of important questions which constitute the business and duties of a modern municipal body.

The fact is, alas! clear enough that the value of Dublin house property in several localities north and south of the Liffey has rapidly gone down during the last quarter of a century or less. On the south side, take the lines of streets that branch off the direct thoroughfare of Grafton-street, Stephen's-green, and Harcourt-street, or those off Aungier and Camden-streets, or again, those in Leeson and Baggot-street directions. Even those streets branching off the south city squares show house property in a ruinous state—fine old mansions once inhabited by the wealth and intelligence of Dublin. The tenement lodger is to be found everywhere almost.

Likewise in the north city, take the line of King, Bolton, and Dorset-streets, Great Britain-street and Summer-hill (the latter once the fashionable Clifton of Dublin, but now growing woe-begone); or again, take the line of the north quays from Queen's-bridge to the Custom House, or from Mary's-abbey to Beresford-place, with their branching side streets—what a sad picture is there not presented of depreciated and ruinous house property in the majority of these streets?

The city cannot be improved by merely extending the municipal boundary, unless a better administration is instituted for governing the city. If more money was raised tomorrow from the absorbed suburban areas, we fear it would do the city little permanent good (that is, under the present bad system of municipal management). We fear the roads in the suburbs would soon get as bad, through neglect, as the streets of the city; and it would be found that the resident population would flee in a short time further afield, and the Corporation would be no better off in the end than they were in the beginning. Increased responsibilities lead to increased cost; and bad management multiplied over a



larger area would still be bad management, with more grievous burdens and results. Modern tastes and modes of living are still in a transition state. Human nature hungers for health and country, and the facilities of modern travelling are in favour of those who desire to live outside the city, and escape, if they can, heavy taxation. It may be impossible to win back to our city again a wealthy resident population throughout the year, but it is not impossible to encourage the nobility and gentry to reside in it for a season or two. The West End of London benefits immensely from the temporary residence of visitors and country families who come up to visit the theatres and public sights, which they would not do if the attractions of London were not great, and the health of the metropolis good. Dublin benefits little, compared with former years, by visitors; foreigners and tourists in the summer season pay our city but a flying visit, and the sojourn of country families is of a very brief duration. Many of our gentry who had town residences in Dublin in former years, and who came up to town in the November season, residing here till the early summer, are but sparsely represented in town. We could point out their fine old brick mansions by the score, many of them empty, others inhabited by others of a less wealthy class, and a large number more inhabited from basement to attic with more than a dozen of families—tenement lodgers. Can any one deny our statements? are they not plain and unvarnished facts, and are not the causes of this sad state of our city property obvious?

The great want of Dublin at present is an efficient municipal administration—men with brains in our councils, and not mere talking politicians. We are ready to admit that our Corporation have not very large sums at their command, but in respect to funds they are much better off than formerly, and what income they can command, if used economically and with wisdom, would be sufficient in a few years to develop a marked improvement in the social and sanitary condition of our city. Improved streets and improved dwellings lead to health and an increased population, and it is sheer folly to expect the city can be improved by heavier rates, or even extending its boundary, so long as the present system of municipal somnolence, neglect, and mismanagement continues unreformed.

### "JERRY'S" JEREMIAD.

#### A SANITARY LESSON.

NEMESIS has overtaken at last the rascally tribe of "Jerry" builders in the Metropolitan district of London. For long years the malpractices of low speculating and unprincipled builders have had their own way, and they "scamped" as they liked in workmanship and materials. Houses were not only "built to sell," but they were built in such a manner that they killed, and that successfully, through bad drainage, or no drainage—built on festering rubbish "shoots," and with foundations on the surface or a few inches below it, and constructed in such a flimsy manner that it was necessary to build them in rows for their mutual support. A great deal of the mortality of London and other cities and towns is attributable to the wretched character of the houses run-up and their surroundings. Several attempts were made to reform the abuse, but only with a very partial success, because the chief

offenders were members of the vestries and local boards, and these bodies even elect the representatives in the Metropolitan Board of Works. Public criticism, indignant with frequent cases of manslaughter occasioned by Jerry houses tumbling down in course of erection, led at last to active measures for abating the evil. The Metropolitan Board was forced to promote and pass building acts, and to supplement them by amendment acts. These, however, were still found insufficient to stamp out the abuse, and now the Metropolitan Board of Works have prepared a number of building bye-laws which await confirmation at the hands of the Government.

The speculating builders of the suburban districts are at present in a regular panic, and a few days ago a number of them formed themselves into a bogus body, styling themselves the "Suburban Builders' Association." Their dodge was exposed in the *Builder*, the *City Press*, and one of the local journals in which speculative building is rife. The Jerrys strive to identify their interest with that of the middle and working classes by representing if the new building bye-laws are confirmed the public will be sufferers as well as builders, as the effect of these bye-laws will increase the cost of building, and consequently lead to an increase of rent. Bah! Little do the "Jerry" builders care for the interests of anybody but themselves. The bye-laws are not a bit too severe, and none of the respectable representative city or suburban builders have complained. The "scamping" fraternity have made large fortunes within the last few years by putting up wretched structures, and now, when they find their game is nearly played out, they howl aloud and come before the public like wolves in sheep's clothing. Poor "injured innocents," no honest builder or house owner will show the least pity towards them, and if they still desire to "scamp," they must go further afield. We hope the Local Boards outside the London district will follow up the action of the Metropolitan Board of Works, and that no rest or peace will be given to the rascally fraternity until they are completely stamped out. These self-called "suburban builders," of the London suburbs, sent a deputation of their body to wait on the Home Secretary on Monday, the 7th inst. Of course they pleaded their case with all their usual adroitness, but the knowledge of their movements and motives reached the Home Office before them, and the Home Secretary, after listening to their Jeremiad, killed them with the kindness of his answer. Let us epitomise their complaints. The precious deputation submitted that the bye-laws passed under the Act of the Metropolitan Board of Works were in many ways objectionable and impracticable, and likely, if passed into law, to be so seriously detrimental to the public good that they ought not to receive confirmation. They then urged alterations in Clauses 1 and 2 as to foundations and sites of buildings, as not being sufficiently definite for the purposes of the Act, and complained that the bye-laws as laid down by the Metropolitan Board of Works were of the most unjust character. They declared that they would compel all builders to use such material in the construction of houses as would render it impossible for any more working men's dwellings to be built. In the matter of the ballast, sand, mortar, foundations of houses, and quality of bricks, they asserted they would

be most seriously affected in their business. They hoped Mr. Cross would return the bye-laws to the Metropolitan Board of Works, with a note that in their present condition they were wholly unacceptable.

"Wholly unacceptable," of course, the bye-laws are, in the opinion of the "Jerrys," but very acceptable to all who desire to see a solution and long-desired reform effected. The Home Secretary blandly informed the deputation that the Metropolitan Board of Works had prepared the bye-laws in the exercise of their discretion for his consideration. They had the power of doing so for the purpose of securing the health and the safety of the people. But as to whether the objections the deputation had raised to the bye-laws—that they were too stringent for the purposes for which they were designed to meet—the Home Secretary softly said it was a question to which his consideration would be given. "More than that at present he could not promise." Exit "Jerry" as wise as he and his fellows came.

"The king of France with fifty thousand men,  
Marched up the hill to fight, and then—marched down again."

*Jacta est alea* "Jerry," may be thundered into the ears of chapfallen scampers again. There is no rest in this world for the wicked, although they may be occasionally successful. No fair-dealing person would desire to see the respectable and legitimate builder harassed by too stringent and vexatious enactments; but this is not the case of the representative builder, but that of a class who have preyed upon the vitals of a suffering public for years, as godless as they are unscrupulous, and as little deserving of pity and toleration as a pack of ravening wolves are who are found among a flock of sheep.

When will we have a stringent Building Act in Dublin, with a number of supplemental building bye-laws? We have needed them for years, but our Corporation are fiddling, and our Dublin architects are indulging in a Rip Van Winkle slumber. Not so with speculating builders in our midst, including some of those philanthropic individuals who are making a nice percentage out of building enterprises, designed of course to benefit the working men of Dublin. Faugh! away with such philanthropy. Let speculators build comfortable homes and charge fair rents, and act on commercial principles, if they like; but let us have sanitary dwellings, moderately large and airy, and not regular hen-coops and rabbit-hutches, unfit for either living or dying in, at one and the same time the living sepulchres and the mortuaries of those who vegetate in them, only to die unnatural deaths.

### TAXATION, AND LAND COMPANIES.

I.—As progress or retrogression is the lot of everything, it must strike many that Great Britain must retrograde unless a policy of action and progress be adopted. This can be effected by a change in the representative system, and by the removal of all trammels which affect labour or its produce, viz., by wiping off the excise and customs which interfere with the free employment of the production of the soil, either in distilling, growth of tobacco, &c. These changes must lead to more direct taxation, not an income, but a property tax, which will give to the payers (according to their contribution) votes in selecting representatives to manage the distribution of these State funds. Every contributor should know the amount he pays, and the benefit which he receives. Votes are only now given to occupants of land, yet there are



several descriptions of taxable property, such as railways, banks, &c. In the "Poor Laws" we see examples of plurality of votes, but perhaps the plan adopted in most co-operative companies is the best. All companies should be represented, and, where necessary, two or more should be consolidated in returning one or more members. Votes might be given in writing, and a stamp attached would be beneficial to the revenue.

II.—Although the tendencies of the French laws would lead people to believe that division of land would result, yet the contrary is really the case, and the land continually in France accumulating into the possession of fewer proprietors: so it is in most countries. In order that larger crops should be extracted from the land, more expensive machinery is required. The cost of this is not within the means of the small farmer, and the large one prefers to graze rather than to embark much in agriculture. It would, therefore, require more funds to buy the machinery, more capital to purchase stock to eat the increased produce, and to build shelter for the cattle. A single individual would be unwilling to invest in machinery, the use of which might be required only for a short time, and for a long period lie useless and unremunerative, neither might he be able to hire. Besides, he knows that if obliged to dispose of these implements he would lose by the sale. It is, therefore, suggested that farming should be conducted in a similar way as our railways and other large commercial concerns, viz., by a co-operation of many individuals into companies, where any loss will be little felt by the shareholders individually. L.

#### THE ART OF THE ITALIAN RENAISSANCE.\*

THE lecturer said that in his course of lectures he intended to make the art of painting his principal study, referring to the sister arts of architecture and sculpture rather by way of occasional illustration than with any attempt at systematic completeness. Painting is the Renaissance art *par excellence*. Great as were the achievements of some of the Renaissance artists in architecture and sculpture, it can scarcely be maintained that they rivalled the works of the great sculptors or mediæval architects, while in painting their supremacy is manifest. It would of course be impossible to treat so vast a subject in anything like an exhaustive manner in a few lectures, and his aim would rather be to supplement the ordinary guide-books and systematic treatises with something not to be found in their pages, than in any way to enter into competition with them. While he might fairly assume that the majority of his audience had at least some knowledge of the masterpieces of Italian art either in the original or through copies, he hoped to interest even those whose knowledge was of the smallest. Every picture that is worth anything is more than so many inches of canvas ingeniously tinted with such and such colours in such and such forms; it expresses something which some man of like passions with ourselves thought it worth a lifetime of infinite labour to express. When, therefore, he should have occasion to refer to or describe a particular picture, he trusted he should not do so in mere Dryasdust fashion, but whenever it was possible he should illustrate his criticisms by means of photographs. In studying the art of any nation, as in studying its literature, we are studying an important phase of its life. Art is the very flower of life—the visible incarnation of that ideal which we desire, and towards which we strive; and even where this ideal is found to embody itself in conventional forms, such as Holy Families and the like, it reveals itself more or less distinctly in the method in which the artist deals with these forms. A Madonna

by Cimabue differs from one by Fra Angelico, and that again from one by Raphael, otherwise than in mere technical power—each expresses a distinct ideal on the part of the painter. Italian painting is essentially the flower of that phase of life which is called the Italian Renaissance, and which, speaking roughly, may be said to have had its origin in the thirteenth and its culmination in the sixteenth century—a great movement of the human mind which, silently prepared for in the so-called dark ages, in the early Christian centuries, can scarcely be said as yet to be superseded by any distinctly new impulse. Was it Christian or anti-Christian in its essence, giving rise, as it did, on the one hand, to the complete scepticism and voluptuous licence of sacerdotal Rome in the sixteenth century, and on the other, to the Protestant Reformation? Was it an aristocratic or democratic movement, underlying, as it did, the refined cruelty and sensuality of the despots of the small Italian States and the liberty, equality, and fraternity of the French Revolution? Was it a rebellion against dogma and authority? If so, it was nursed in the very bosom of the Church herself. Was it due to what was called the Revival of Learning. If so, it produced an original art, science, and literature of its own, quite unlike those of classical antiquity. The fact is that the movement was a very complex one—as complex as the human mind itself, of which it expressed something very fitly described as a new birth. The revival of learning which opened up the treasures of classical antiquity was but one of the influences at work. The seed of the classical writers fell upon soil already prepared, and brought forth abundantly its strong crop—some sixty and some an hundredfold. The day of judgment which had been hanging over the world so long seemed indefinitely postponed, and people began to sing and dance and think life not so sinful a thing after all. Every one engaged in a frantic effort to find happiness in this life, whatever might be his fortune in the dim next world—the more selfish seeking it for themselves, the more unselfish for the world in general. The thoughts of men's minds, whether sensual or spiritual, began to be revealed, not merely in inarticulate actions but in theories of life, in literature, art, and science. It must not, however, be supposed that art was altogether dead, even in these ages of ecclesiastical supremacy. Painting barely existed. The true art of these ecclesiastical centuries was architecture, which in its two forms of Romanesque and Gothic, became, as in Greece, the central art, around which the others developed themselves. Architecture, in itself the most abstract and least sensuous of the arts, was embellished and glorified with rich form by means of sculpture and carving. One kind of beauty, however, and that the highest, the beauty of the human form, was kept in abeyance. The body, as the mere temporary appendage of the soul, was, to some extent, under the ban of the Church. The great cathedrals, Romanesque and Gothic, were mostly built during the 10th, 11th, 12th, and 13th centuries, and they became the architectural framework for the newly-awakened art of painting. Previous to the Renaissance, art, like literature, law, and medicine, had been altogether in the hands of the priesthood. The distinctly Pagan character of the Italian Renaissance shows itself in the art and literature, and social history of Italy from the thirteenth to the sixteenth century; until, in this latter century, we find something of the same reaction against the ascetic ideal of the early Church as took place at the Restoration of the Stuarts against the asceticism of the English Puritans, but on a more magnificent scale. And here let it be confessed, that if the ideal of Christianity be truly an ascetic one—if the Christian in this world be really a pilgrim and a stranger—if the world itself be marred and ruined—a diabolical snare for the soul; if man himself be essentially evil and his body a mass of corruption, then the Puritans were right in their hatred

of all art. What business have men trembling for their little span of life between two eternities to waste that span with the tempting sorceries of form, colour, and sound? But absolute asceticism is simply impossible for the mass of mankind. The genius of Italy was not of a supremely spiritual or ethical type. While the Renaissance produces at a later period in more northern nations the search for scientific and philosophic truth, and the endeavour after political stability and morality in Italy, it resulted in an intensity of individual life, and in a certain delight in life, which gave rise to that "pride, pomp, and circumstances," that imaginative pageantry which reached our own shores in the days of Elizabeth. At first the effect of the Renaissance in its fully developed form was a species of frenzy—a delirium of sensuous and intellectual intoxication. The Renaissance represents the transition from barbarism to culture of men who, spite of the rapid spread of this culture, long retained their savage passions. The Renaissance, by exciting the intellect, made the primitive passions more complex in their working, without at first subduing them. Their superficial culture sat upon the mass of men of the period like an embroidered robe upon a savage. It was a thing of ostentation, covering much that was filthy. But with something of the sublime insouciance of the savage who struts about in the full dress of a postage stamp and a cocked hat, and turns everything he can steal from civilization to his own uses, the Italians of the fourteenth and fifteenth centuries appropriated the spoils of antiquity and of the East, and fashioned for themselves a new civilization more heterogeneous in its materials than any the world had ever seen before. It is a matter of wonder how an art so beautiful and serene as the early Renaissance work could have been produced amid such a turmoil of civil war—how the lily of mystical purity could flourish in the midst of the basest and filthiest criminality in the very bosom of the Church itself, in the courts of princes, and in the academies of scholars. But man's power of abstraction is wonderful. Probably these brigand-like artists who kept a good store of arms in their workshops, and were ready to exchange sword and dagger thrusts at a moment's notice, would be astonished at the calmness with which the citizens of Dublin allow their city to become one of the worst dens of pestilence in civilized Europe, without, at least, lynching a few of those guardians of the public health, whose business it is supposed to be to attempt the prevention of preventable disease. The lecturer next referred to the schools of painting at Pisa, Sienna, and Florence, and criticised some of the works produced in them during the thirteenth and fourteenth centuries.

#### THE LIVINGSTONE STATUE.

THE statue of Dr. Livingstone in George square, Glasgow, which has been publicly unveiled, is universally admitted to be a life-like representation. The artist (Mr. Mossman) has endeavoured to embody in the memorial, as far as his art allowed, Livingstone's special claims to fame, and accordingly the great traveller is represented as standing by the stump of a palm tree, his cloak thrown carelessly over it, the attitude conveying the idea that he is addressing a crowd of natives of Africa on the truths of the Gospel. In his right hand, resting upon the tree, he holds his cap, while in his left there is the Bible, one of his fingers being inserted between the leaves. The face wears a grave and thoughtful expression. The costume is simple. A loose jacket permits the shirt to be seen. He is girt by a waistbelt, and over his shoulders is slung his binocular glass. His labours in the cause of the slave are suggested by a broken goad-stick and a portion of a broken chain. Upon the panels of the granite pedestal on which the statue stands are three alto-relievos, illustrating Livingstone's

\* By Dr. John Toddhunter. Being the first of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.



life and work. On the front panel he is represented as seated with a Bible on his knee, expounding the Gospel to a motley group of natives. Another panel illustrates the brutality of the slave-traffic by a woman writhing under the lash of the slave dealer; while a third represents Livingstone in his character as an explorer. The panel at the back of the statue contains the inscription: "David Livingstone, born Blantyre, 19th March, 1813; Died Ilala, Lake Bangweolo, 1st May, 1873."

### IMPROVEMENTS IN SULPHURIC ACID MANUFACTURE.\*

THERE are few considerations of greater moment, and which are more essential to the success and even existence of the great industries carried on in these countries than those affecting the production of those articles of manufacture for which England has been accredited with having the means and opportunities of supplying more favourably to the world than other countries. Such considerations may be resolved primarily into (1) the prevention of the excessive employment of labour; and (2) an extravagant consumption of raw materials.

At no period in the history of our commerce have those investigations had greater importance than at times of trade depression and commercial stagnation; and it is, perhaps, not too much to say that the revival of commercial prosperity in these countries must be accomplished by and attended with such a reduction in the cost of production as will enable us, aided by our natural and other advantages, to distance other nations, who, during the late period of our unparalleled prosperity, have been erecting and fostering for their own purposes enterprises and manufactures which some years since they were almost unacquainted with. From a philosophical point of view, and also in many other respects, it is well for us that such periods of restricted commerce should occur, if we were as sufficiently prudent to direct our attention to economical modes of manufacture, and at the same time, improve the quality of our productions. It is, I believe, admitted that we have numerous opportunities for such improvements. In one direction, and perhaps the first, there is now going on such a lowering of the scale of wages for all classes of labour, and extension of the hours of occupation as must immediately and directly cheapen production; and further, I believe at no time has there been so much attention and skill employed in the details of manufactures and the accomplishing of innumerable little savings and prevention of waste of raw material; and although this may not have been fully recognized, or sufficient importance given to it, I am persuaded that at no time has so much unobtrusive reform, and improvement in all processes of manufactures been so successfully carried through as at this time. Invention has been stimulated and improvements adopted and employed, that would hitherto be regarded as too trivial, and attended with too much complication and care to be of use or commercial advantage. The influence of excessive demand and great activity in commercial enterprise is calculated to engross the manufacturer's sole attention towards increasing the quantity and extent of his operations, with a tendency to neglect careful and skilful manipulation. Of course, an obvious reduction of cost results by increasing the dimensions (within certain limits) of commercial operations in relation to the capital employed and the supervision and standing charges incurred; but I believe it will now be admitted that the commercial history of these countries has arrived at a stage in which it is not prudent or even admissible to continue to increase our productions, and in many of the leading industries there is a marked disposition to recede to more restricted limits, while this is being

accompanied with more attention to those details which, in prosperous and perhaps extravagant times are neglected, as being of too little importance to occupy consideration.

In all such works and investigations the part which is the particular province and the duty of the engineer, and in which physical considerations and the choice of materials are involved, is, without doubt, of the greatest importance; and in no industry is this so marked or been attended with more satisfactory results than that which the subject of this paper is connected with. Some years back the processes carried on in chemical works were conducted in the rudest and most incomplete manner, and the construction and arrangement of the plant employed was of the most unsatisfactory nature; and it is not too much to say that the great modern improvements have more reference to matters of construction and arrangement, and the employment of proper materials of sufficient strength and suitability than to the prolonged research and skill of purely scientific chemists. I believe there is no work which comes within the province of the engineer, where a proper knowledge of the properties of materials are more essential than in the judicious selection and maintenance of modern plant for successfully carrying on chemical manufactures. In Ireland we have but few of these industries; and in the hope that some description of recent improvements in the chief and primary process in all chemical works—by which sulphuric acid on a large scale is produced—might prove interesting to the members of this Institution, I have ventured to read this paper. In the plant the description of which I intend to bring before you, there are some novel features and improvements, which have now been in action a sufficient length of time to establish their advantages.

Although most of you are acquainted with the process of sulphuric acid manufacture, I trust it may not be out of place to give a short account of its leading features and characteristics. I will not go back on the very interesting history of the process, or refer to the many and peculiar steps and arrangements which led to the continuous process being universally adopted in all chemical works, the leading principles of which are (1) The continuous combustion of sulphur in burners built outside, and connected with the condensing compartments or chambers; (2) Sending the nitrous fumes from nitrate of soda (decomposed in a separate vessel), along with the sulphur dioxide gas and air into the chambers; (3) The introduction of water, in the form of steam, and so in the minutest condition of mechanical subdivision. The theory of the process as at present understood, was described by the author.

The more modern improvements in the manufacture of sulphuric acid have chiefly consisted in the means for recovering the nitrous fumes (and so economising nitrate of soda), which were carried away in the older order of the process; and this is accomplished by causing these fumes, in company with the escaping gases from the chambers, to pass through the interstices of a coke-packed wash-tower, down which trickles an evenly-distributed stream of strong sulphuric acid, which has the property of absorbing the nitrous fumes, and so separates them, and prevents their escaping with the excessive nitrogen and waste gases. The strong sulphuric acid thus charged with the oxides of nitrogen, is conducted to the top of another, the hot tower (placed in immediate proximity to the burners), where by a special arrangement it is caused to mix with weaker acid, and trickle down through the flints, with which this tower is packed; in its downward course it is met by the gases from the kilns, the heat from which, in conjunction with the weak acid, causes the liberation of the nitrous fumes. Thus the escaping oxides of nitrogen are brought back to the first stages in the process and progress of the gases, and they again play

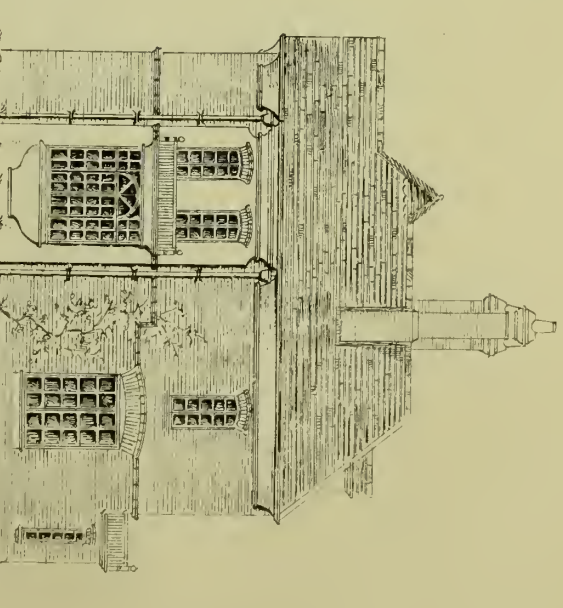
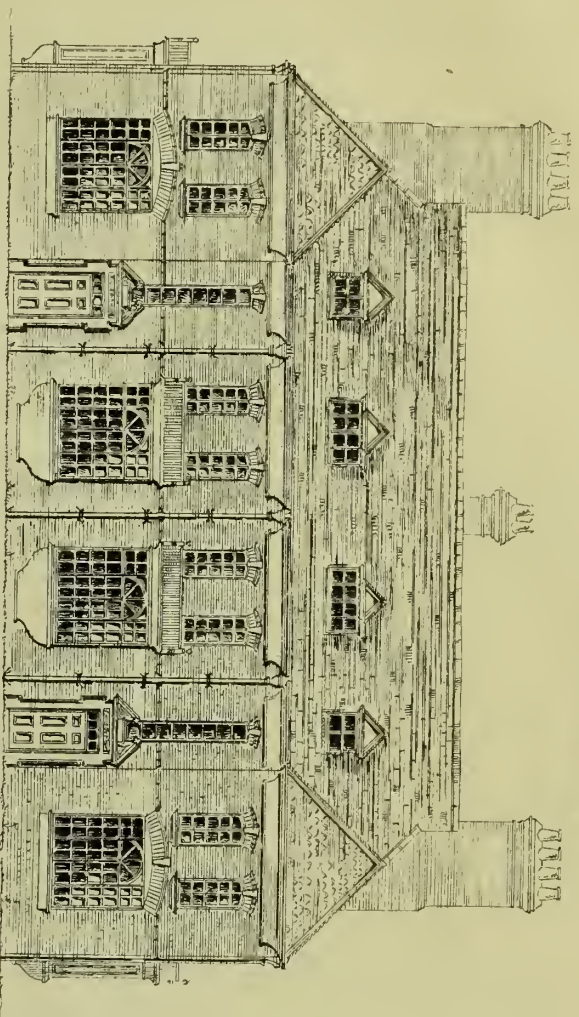
their important part in the economy of the process. This improvement has had the effect of materially reducing the cost of producing sulphuric acid. Whereas in the early continuous process, some 100 to 120lbs. of nitrate of soda were required to make a ton of real acid (O.V.), by the adoption of the recovering and dinitrating towers, the consumption in many manufactories has been reduced below 20lbs. In addition to this the manufacturer can afford to maintain the presence of oxides of nitrogen to a much more liberal extent within the chambers, and more economical results are thereby obtained from the raw sulphur. Furthermore, owing to the great heat of the dinitrating tower, the acid is concentrated, and a considerable quantity of steam is given off and supplied to the process, so requiring less from the steam boiler. The process commences with the burning of the sulphur in the kilns, and the usual source of sulphur for large commercial purposes is from iron pyrites, i.e., sulphur in combination with iron, and the great and almost sole source is the Spanish mines, where a cuprous sulphur ore is obtained, rich in both sulphur and copper. Some years back the Sulphur Ore Mines, near Ovoca, in the County Wicklow, were a fruitful source of supply, but they have of late been superseded both in extent and quality by the Spanish imports. The sulphur ore is broken up into pieces of the size of road metalling, and it burns without the assistance of extraneous heat; the sulphur uniting with the oxygen of air, and forming sulphur dioxide. The charge of sulphur ore would be from 5 to 6 cwt. to each burner every twelve hours. The kilns are opened, cinders removed, and charged every twelve hours, and each in regular order, with an interval of an hour between them, so that a continuous and fairly regular quantity of sulphur dioxide is emitted from them. The several doors and openings to the kilns should be made to fit very closely, and those over the level of the grate should be perfectly tight when closed, and but a small area of opening should be made in the door below the grate to allow the air to enter, gradually decreasing this as the charge burns off. It is a very important point in economical working to keep the excess of air within moderate bounds; too much not only dilutes the gases in the chambers, but occupies space, and lessens that required for the quiet formation and settlement of the sulphuric acid.

The action that takes place within sulphuric acid chambers is by no means sufficiently understood, and the opinions of chemists are much at variance as to what really occurs; but the general conditions for successfully conducting the process are, to some extent, settled—although conditions of temperature are considered by many to play a leading part, I am disposed to believe its importance has been very much exaggerated. The gases, from their nature and circumstances, naturally assume certain conditions of temperature within the chambers, but any fluctuations or departures from any given supposed normal heat, due to climatic or other accidental causes, have not, in my own experience, been attended with consequences unfavourable to the formation of sulphuric acid. But what I regard as the most important of all conditions is that the several gases should, during their progress through the chambers, exist in some definite and regulated proportion to each other in each successive stage, and any disturbance to this will be accompanied with an interference to the economical formation of acid, and lead to the loss of valuable gases, either by impairing their efficiency or altering their proper relation to each other, and so lead to excessive loss in the escapes to the chimney. Now, it is in the regulation of the proper quantities of the gases that the skill in the operation is displayed, and it constantly occurs that chambers will go wrong, even with the best and most skilful attention. The sulphur dioxide is fairly and uniformly supplied by the regular charges of sulphur

\* By W. G. Stryke, M. Inst. C.E. Read at meeting of Institution of Civil Engineers of Ireland on 2nd inst.



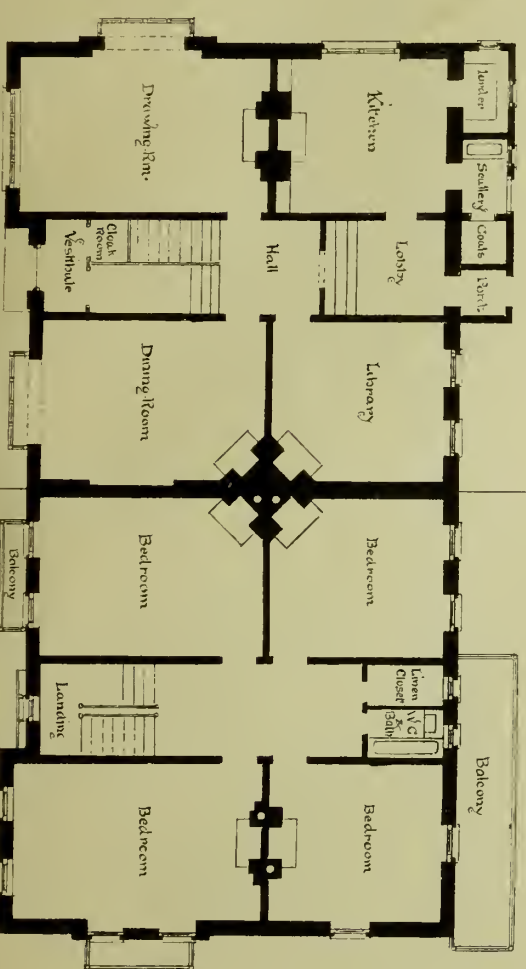
Design For Semi-detached Villas



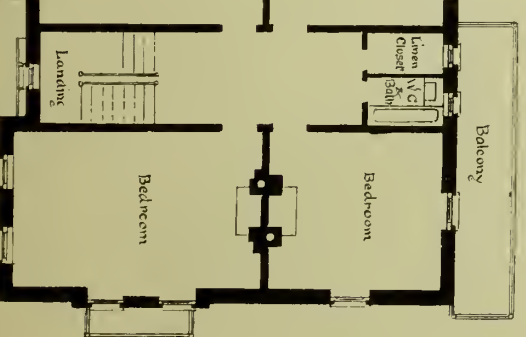
Front Elevation



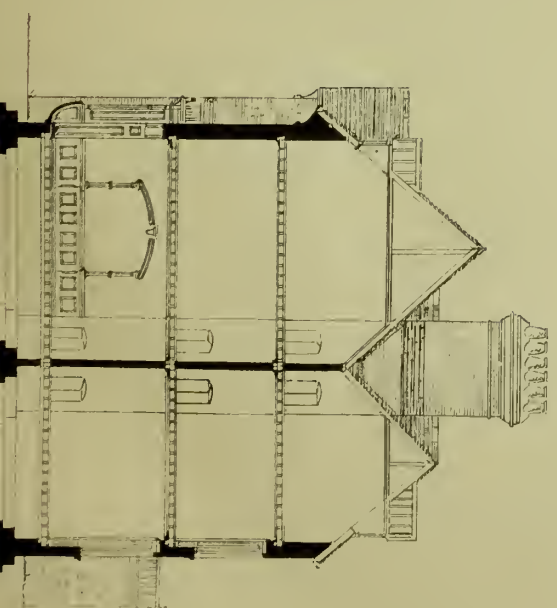
End Elevation



Ground Plan



Bedroom Plan



Section



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ore to the burners. The oxides of nitrogen are regulated by the flow of recovered fumes contained in the saturated acid in the hot tower, supplemented by regular charges of small quantities of nitrate of soda necessary to make up for the unavoidable loss. The supply of steam can also be regulated and adjusted with considerable accuracy, and the fluctuations of boiler pressure can be corrected automatically by causing the steam, on its way to the chambers, to pass through a reducing valve, and so ensure a uniform pressure at the chambers. But it is exceedingly difficult to regulate the supply of air which passes the burners, and under certain conditions, completely floods the chambers, and throws out the whole order and proper working of the process, and this is mainly attributable to variations in the exit draught. Every means that I have had an opportunity of examining to regulate the draught appears to me to be uncertain and insufficient. The draught throughout the chambers is so moderate that the ordinary water gauge cannot be depended on to observe its changes; and the most refined attempt I have seen to overcome this difficulty is to employ a man expressly for the purpose of going round the chambers who regulates a damper to the best of his judgment. I do not mean to assert but that excellent results have attended this precaution, but it is obvious such a system must be dependent upon the carefulness of the man and his skill in observation.

I, therefore, sought to accomplish this work by a self-acting damper, which would be so sensitive as to alter the draught passages in relation to every change that would occur in the power of the chimney. Owing to the slight draught under which chambers ordinarily work, it became necessary to devise a very delicately-working apparatus in the chambers at Wicklow. Owing to the largeness of area and freedom of all the passages, we find a draught regulated to about an eighth of an inch of water, to be sufficient at the exit from the absorbing towers; and the apparatus has been so successful that the smallest change in the chamber draught cannot take place, no matter how the chimney varies.

The action of the apparatus is very sensitive, and, in an open place, like the Murrigh, at Wicklow, such a contrivance is of the utmost value. In stormy weather the movements of the lever are quite animated, while, in a moderate wind, the apparatus lazily moves in adjustment. By means of it the quantity of air to the chamber can be controlled, with some degree of certainty, and the comfort and success of the process considerably assisted, and in a manner that can never be attained by the most skilful manipulation. I have now had the regulator in action for some three months, during the very stormy and unsettled weather of the winter, and with the rare and remarkable result that the chambers have never gone wrong, whilst the consumption of nitrate of soda was considerably below the average, and the sulphur escape, as determined by a continuous test of the gases, as they passed to the chimney, has been very little.

### THE NEW MARKETS.

THE contract for the works in connection with the South City Markets project has been taken by Mr. Thorpe, of Leeds. The following particulars are extracted from a morning contemporary:—With its environment of shops and warehouses, the market will cover the whole central block bounded by Exchequer-street on the north, Fade-street on the south, Great George's-street on the west, and Drury-lane on the east, with a continuation into William-street by means of an arcade across Drury-lane. The great market hall, forming a parallelogram 246 ft., surrounded by an inner ring of shops, will occupy the centre of this space. All around,

outside an open space of varying width, which will serve the double purpose of introducing an adequate supply of light and air both to the market and the houses, and of concealing the irregularity of the site, there will be built with frontages to the different streets a continuous belt of houses of uniform design, with more or less costly accommodation. The front elevation of this massive pile will be in George's-street, four storeys high with a length of 370 ft. The whole will be set-off in moulded brickwork, relieved with terra-cotta. Pepper-box pinnacles at the angles, clock-towers over the entrance gates, a deeply-recessed and moulded archway over the great central avenue, and groups of circular-headed windows, with double reveals and arches in brickwork, finished with a simple roll moulding, form the whole catalogue of external ornamentations; and they are ample for the beautification of the range of bright-looking and imposing shops underneath. The market-hall covers an area of 5,360 superficial yards, surrounded internally by fifty-four shops, of depths varying from 5 to 30 ft., and with one hundred and forty-four stalls arranged in parallel tiers, with double frontage to the aisles, around the clustered iron pillars which support the great glass roof. Two great avenues traverse the hall, the central one, 30 ft. in width, running from George's-street to William-street, and the other extending crosswise from the Exchequer street entrance to that in Fade-street. A special advantage claimed for the roof is that, while it will afford a maximum of light and air, with perfect shelter from the weather, it will prevent that direct invasion from the sun's rays which is complained of as one of the most grievous drawbacks in all but a few public markets of the latest construction. This is brought about by admitting light through plate-glass windows from the north, to which the lie of the bays from east to west gives a full exposure, and boarding off and slating the exposed southern side of the roof with a coating of felt, which has the reputation of being a non-conductor of heat. The glare and heat which are in summer-time the terror of the butcher and fruiterer will thus be effectually shut off, while light, ventilation, sewerage, and purity of atmosphere will be abundantly secured by the latest contrivances of science. The vista from George's-street as far as William-street is continued by a lofty glass and iron arcade crossing Drury-lane and terminating in the shops that will be built to form the William-street entrance. This smaller block, covering an area of 1,000 superficial yards, will add ten more shops and twenty-four more stalls to the internal accommodation of the market. The exterior belt of houses facing George's-street will be divided as to their ground floors into eleven imposing looking shops about 40 ft. deep and with about 24 ft. frontage, extending back to the market-wall, which is so contrived as to admit ample light and air to the backs of the shops and warehouses. The upper floors and attic storey may be either attached to the shops and cut off from privacy with the rest of the block, or may be let as offices, warehouses, show-rooms, or chambers. Each floor is traversed by a broad corridor, approached from George's-street by two spacious entrances isolated from the shops. The range of houses facing Exchequer-street, somewhat less pretentious, are apportioned upon a similar plan into nine shops, with a frontage of about 18 ft. each by a depth of 36. Those fronting Fade-street will form six medium-sized shops, with residences attached, and a fourth side of the parallelogram along Drury-lane will be formed by 21 smaller shops and residences of a character suited to the rising fortunes of that locality. The entire basement storey underneath the market and the houses, will be excavated for cellars to such a depth as will admit 12 ft. clear height under the crown of the arches which are designed to carry the market hall floors. With perfectly safe and easy ingress to this basement,

which is secured by two inclines from Fade-street and Drury-lane by which carts may pass in and out, it is reckoned that the cellars can be turned into an important source of revenue to the company, whether as bonded stores or as appendages to the shops and stalls. The central portion, which is particularly marked out for bonded stores, covers an area of 200 ft. by 75, surrounded by an avenue for carts, the roof being vaulted in brickwork springing from brick piers, but with the introduction of iron beams to carry the arching in over the roadway. A separate range of cellars runs underneath the outer ring of houses. This is, in brief, the project which we may hope will shortly be realised.

### THE SANITARY TREE OF THE FUTURE.

THE hygienic properties of the Australian Eucalypti or gum trees, now so fully proved, is leading to increased inquiries, and the importation of the seeds and saplings to European countries. Letters are reaching by every mail to Australia both from residents in the British Islands, India, and China, asking for information as to what variety of these trees will suit their special climates and soil. Mr. R. D. Adams, of Sydney, has collected some information, through Baron Ford, Von Muller, and Mr. Charles Moore, directors respectively of the botanic departments of Victoria and New South Wales, for the information of residents in the mother country. We here present it, and hope it will be found of interest:—

*Eucalyptus Globulus* (Blue Gum of Tasmania).—Grows rapidly, attains great height, grows best near creeks, and will stand moderate frost and snow if well sheltered from wind.

*E. Citriodora* (Queensland).—Gives also from its leaves a large supply of volatile oil of lemon fragrance.

*E. Diversecola* (Victoria).—Immense girth and great height, with shady foliage; prefers humid valleys, but also flourishes in dry arid soil near Melbourne.

*E. Leucocylon* (N.S.W. and Victoria).—Iron bark tree, moderate height, grows well on stony ridges, is the strongest known wood, rich in kino, and is flourishing near Lucknow (India).

*E. Amygdalina* (N.S.W. and Victoria).—Rapid growth, great girth and height, and in New Zealand survives frost where *E. Globulus* died, where it thrives. This is one of the best of the whole tribe.

*E. Brachypoda*.—Spread over the island tropical and extra tropical arid regions of Australia, and is one of the best sort for desert country.

*E. Resinifera* (N.S.W.).—Red mahogany, splendid timber, and is proved to be well adapted for tropical climates.

*E. Rostrata*.—Red gum, good timber for poles and posts; it will grow well in swamps, and thrives well in Oude, where *E. Globulus* and other sorts failed.

*E. Gunoi* (N.S.W., Victoria and Tasmania).—Grows well at Alpine and sub-Alpine elevations.

The following sorts also reach heights here covered with snow for some months yearly.—*E. Coriacea*, *E. Alpina*, *E. Urnegera*, *E. Coccolera*, and *E. Vernicosa*.

Although in some of the above varieties the foliage is not so thick nor the scent of the leaves so powerful as in the *E. Globulus*, analysis proves that they are richer really in the essential oils, &c.; and the whole tribe of Eucalypti is valuable for its splendid durable timber, and for the production of tar, pitch, potash, acetic acid, and dye-stuffs.

Messrs. Crosswell and Co., seedsmen in Sydney, are collecting seeds from various parts of the colony, so that the different varieties adapted to cold, hot, or dry climates, may be obtainable. It will be necessary for inquirers who need particular sorts to state their botanical name, for in different parts of the colony the same common name does not always mean the same sort of tree. Out of upwards of 100 sorts it is always possible to secure a kind suitable to a particular climate or soil. We hope to see in our public parks, gardens, and open spaces in Ireland in a few years some flourishing specimens of the Eucalypti or health tree of the future.



## GAS ILLUMINATION.\*

(Concluded from page 111.)

ARGAND burners are exclusively used in the photometric testing of common gas, and they are also employed rather extensively for lighting shops and public buildings, but to a limited extent for private houses. They give a higher photometric effect with common gas than any flat-flame burner known: and even with cannel gas, the best descriptions, especially those of Sugg and Silber, give results which approach very near to those obtained when the gas is tested at a comparatively low pressure by large-sized fish-tail or bat's wing-burners.

The original form of Argand was a brass double cylinder with, above, an iron ring perforated with small holes, and below, a "crutch" or formed tube, by which the gas was introduced at opposite sides. A wide and short glass chimney was used, but this was afterwards modified in a variety of ways with a view to making the current of air impinge more directly upon the flame, and so increase the intensity of combustion. The holes being small, the gas escaped at a comparatively high pressure; and the character of the flame, both as to volume, shape, and luminosity, depended partly upon the initial velocity with which the gas escaped from the burner, and partly upon the shape and dimensions of the funnel. The enlargement of the holes, enabling the gas to escape at a moderate pressure, was proposed by the late Dr. Letheby, who was associated with Mr. Sugg, by whom a great many improvements in Argand burners have been introduced. The Letheby burner raised the apparent quality of London gas from 12 to 14 candles, and a further increase of two candles was obtained by Sugg's "London" Argand, now generally accepted as the standard burner for testing gas made from common coal. In this burner the principle is recognised of permitting the gas to escape practically without pressure, the shape and volume of the flame being determined by the narrow funnel and a "cone" of thin metal, which serves to throw the current of air into close contact with the outside of the flame. The upper portion of the burner is of statite, and, instead of the ordinary "crutch" below, the gas is introduced by three very narrow tubes. A number of sizes of this burner are made, of which details are given below; but the following are the various dimensions of the standard burner used in photometry:—Diameter of statite top, external, 0.84 inch; internal, 0.47 inch; number of holes, 24; diameter of holes, .04 inch; chimney, 6 by 1½ inches for gas of 14 candles, and 6 by 2 for gas of 16 candles. The narrow funnel and the cone restrict the quantity of air to very little more than is required to burn the gas, thus avoiding the diminution of light which results from a too rapid combustion of the gas, and the cooling effect of a large volume of air. The pressure of the gas inside the statite top is considerably less than 0.1 of an inch, and that required to pass five feet per hour through the complete burner is about 0.2 of an inch.

In the burner introduced by Mr. A. M. Silber the statite top with wide holes (about one millimetre, or .04 inch) is also adopted; but the body of the burner is considerably elongated, and the so-called "cone" is long and cylindrical, with a curved top. A very essential feature in the Silber Argand is an air-tube introduced into the centre of the jet, which is said to carry a portion of the air to the upper part of the flame, and which certainly has a remarkable effect in steadying it. The chimney is 8 by 1½ inches, and, in consequence of the form of the "cone," is kept so cool at the bottom that it may be handled without difficulty while the flame is burning. Chimneys of 10 inches high are also used, but, while the consumption of gas is thereby increased, the illuminating power per cubic foot of gas remains almost quite constant. Mr. Silber has discovered the

remarkable fact that a globe or vase placed below his Argand increases the illuminating power considerably, and I have had an opportunity of verifying his statement, both as to common and cannel gas, the increase with the former being about a candle, and with the latter about 1½ candles. The effect of placing a vase below an ordinary union jet was also tried, but no increase of light was obtained, while the flame showed a distinct tendency to "blow." That the flame of the Argand should have its illuminating power increased 6 per cent. by passing the gas through a glass vase (or cylindrical metal box, which answers the purpose equally well) is a phenomenon which appears to be at present incapable of explanation.

A series of experiments were made in order to ascertain the relative dimensions of the inlet and the outlet of various burners. The upper statite portion of each burner was removed and fitted up in a little bit of apparatus extemporised for the purpose, so that gas could be passed through the holes, while the bottom portions were simply screwed on in the usual manner, and the gas allowed to escape without lighting it. In all the trials the pressure of the gas was maintained steadily at 0.2 of an inch of water.

The "Bec à Bengel," or Bengel Argand burner, used for gas-testing in Paris, has a porcelain top with 30 rather small holes, a brass cone, and at the bottom what is called a "panier," constructed of porcelain, and pierced with numerous small holes for the admission of air. The chimney is 8 by 1½ inches. With 26-candle gas it burned 2.5 cubic feet, and gave a light of 10.8 candles, or, for 5 feet per hour, 21.6 candles.

Experiments were made in order to ascertain the loss of light resulting from the use of globes of different kinds, and of various shapes. The loss is always considerable, and in many cases excessive, and it results partly from the absorption of light from the material of the globe, and partly from the draught caused by the ascension of the heated air in the confined space. As regards material, a piece of clear window-glass, held in front of a gas-flame, diminishes the light to the extent of about 10 per cent.; but in the case of a clear globe it is, in some cases, less, owing to the reflection from the surface furthest from the photometer. Globes frosted or ground all over, technically known as "moons," absorb about 25 per cent. of the light when well shaped, and opal or "cornelian" globes 40 to 50 per cent., according to the thickness and quality of the glass.

One of the difficulties connected with gas illumination is that the pressure in the mains varies considerably in different parts of the town, and at different hours of the day and night. One result is that a system of lighting, adapted for a part of a town situated in a low level, will show inferior results in a more elevated situation. A rise of 10 feet gives, roughly, a tenth of an inch of an increase of pressure, so that it may easily happen that in the same town or city the pressure in one place may be one inch, while in another it may be 2½ inches. Again, the pressure of the gas, as sent out from the gas-works, is altered from time to time, in accordance with the consumption, and as public works, shops, &c., are suddenly lit up or extinguished at certain hours, private consumers are annoyed, in the one case by the falling off in the amount of light, and in the other by a flaring flame and hissing sound, both of which are very irritating. The cure for these evils is to be found in the use of governors or regulators. Every district of a town, the elevation of which is such as to affect appreciably the pressure of the gas, should have a governor, which may either be self-acting, to maintain a constant pressure throughout the day, or to vary sympathetically with the governor at the gas-works. Many of those have been invented, among which may be mentioned those of Cathels, Peebles, and Foulis. The pressure in the mains should not be reduced below 12 or 14-tenths of an inch, but as even that is too high a pressure for the economical burn-

ing of gas, each house should have a regulator in order to reduce the pressure constantly to about 7 or 8-tenths. Some of these regulators are dependent on the action of the gas upon a broad leather disc, attached to which is a ball and socket valve, while others have metal or glass bells floating in mercury, and acting upon a valve of the same kind. Both of these work satisfactorily when properly constructed. Among the best dry regulators are those of Sugg of London, and Peebles of Edinburgh, while the best mercurial governor that I have seen is that of Busch of Oldham. In the case of public works and other buildings consisting of several floors, a regulator should be placed on each floor. Street lamp regulators are of great importance, and great attention has been given to the perfecting of them by various ingenious mechanicians. The kind the largest number of which are in use at the present time resembles the dry house regulator already mentioned, the construction being quite similar. These little instruments are made by a great many gas engineers, among whom Sugg and Peebles may be named. The principle involved in the action of the apparatus will be at once understood by a glance of the sectional drawing I have placed upon the wall. It is a regulator, not of volume, but of pressure, and hence the quantity of gas consumed in any street lamp provided with it depends upon the burner. There is an objection to this regulator, and it is a serious one—the leather diaphragm becomes in time hard and stiff, and ceases to act freely, and, unless it be renewed at intervals, say of 12 or 18 months, the instrument is by no means satisfactory. The next street lamp regulator in point of period of introduction of Giroud's rheometer. This beautiful little instrument, which delivers a constant volume of gas, consists of a short cylinder containing glycerine, in which floats a bell of very thin metal, and formed at the top into a cone, the apex of which passes through an orifice in the cover of the cylinder. In the bell itself there is a small hole, through which the supply of gas to the burner must pass. An increase of pressure causes the bell to rise, and the cone to enter the orifice above, thus reducing the area of the aperture through which the gas has to make its way to the burner. The regulation of the rheometer is very perfect, but it ceases to be effective in some eventualities which occasionally occur.

The most recent street-lamp regulator may be called a dry rheometer. It delivers, like the instrument just noticed, a constant volume of gas, but the bell, or substitute for it, instead of floating in a liquid, is simply supported while in action by the pressure of the gas. A regulator of this kind is first indicated in the book published by Giroud, but I am not aware that he ever actually reduced his idea to practice. Victor Bablon, of Paris, patented in 1875, "an apparatus for regulating the flow of lighting gas," in which the float, if it may be so called, is a disc of thin metal connected to a small hollow spindle. It has been introduced somewhat extensively in France, but it is almost unknown here. It works with somewhat greater friction than the "needle governor" of Peebles, which is, to my mind, the perfection of gas regulators. In a little cylinder stands a so-called needle, on the point of which rests a flanged cone of exceedingly thin metal. At one side of the cylinder there is a small tube leading away the gas, and by means of a screw working into the side tube, the instrument can be made to deliver any desired number of cubic feet, which it does with surprising accuracy, provided that the pressure of the gas is not less than eight-tenths of an inch. In trials I have made I have not found the variations of volume at different pressures to exceed 1 per cent. With such a regulator as this, it would be possible to employ Argand burners for street lamps. These burners, when of the best kind, are exceedingly sensitive to quantity of gas. If you have a Sugg or Silber Argand regulated so as to be near the smoking point, and so giving the highest

\* By Dr. William Wallace, F.R.S.E. Read at Society of Arts, January 30th.



illuminating value that the gas is capable of yielding, the smallest additional supply of gas will cause the flame to smoke. I have here one of Silber's Argands fitted to a needle governor, and you will have an opportunity of seeing the regularity of the flame under different conditions of pressure. I should have mentioned, before the needle governor, the invention of Flürscheim, patented in this country by Borradaile in 1877, but it resembles Babilou's instrument closely, and differs from it chiefly in details.

One other description of regulator remains to be described—that which may be used in connection with the ordinary burners in our apartments. It must necessarily be small, in fact, it should not be much larger than the burner itself. Sugg, has, for a number of years, supplied a regulator of this kind, consisting of a leather diaphragm with ball and socket arrangement, but it is a little uncertain in its action, and, so far as my experience goes, not altogether satisfactory; and, besides, it is too large to be useful except as part of a special system of lighting. Peebles has been endeavouring to reduce his needle governor to similar dimensions, and although he does not claim to have yet produced an altogether perfect instrument, in so far as it requires about 8 of an inch of pressure to put it in action, he has great hopes that he will yet be successful.

In this paper I have attempted to indicate the process recently made in the way of developing the photogenic power of coal gas, and the direction in which further improvements may be looked for. I shall be glad if my remarks have the effect of attracting attention to a subject of such interest and importance.

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

CENTENARIANS in Ireland are not, as the Registrar-General's returns prove, uncommon at present no more than in the past. There is no doubt but in former times a large number of those reputed centenarians never reached their hundredth year, although some of the individuals themselves might be of the opinion that they were fully as old as they believed. Poor and very aged persons who could neither read nor write, and particularly those of the mendicant class, were prone to make themselves older than they were, as it secured them sympathy and practical relief. Registration in past times was very imperfect, and in thousands of instances many aged persons could give no clear account of the year they were born or of the church in which they were baptised. Some great national or local event was made to approximate the period of their birth, but the exact year or month they were born into the world, many old persons could not tell. It is therefore no wonder that some literary antiquaries and essayists in our midst were led to doubt that, except in rare cases, the claims of centenarians were entitled to credit. Mr. Thoms, the late editor of *Notes and Queries*, was a thorough disbeliever in the numerous cases announced from time to time in the public Press, and he often spent much time and inquiry to sift the statements put forward. In several instances he succeeded in proving that the reputed centenarians had not reached the centennial period by several years, but in other cases he had to allow that the facts were strong against him, and that the persons in question had really passed their hundredth year. A century is a considerable space of time when it is looked forward to by a youth in his teens or a young man of twenty or twenty-five; but to a hale, hearty and robust man in his seventy-fifth year (and there are many such men) twenty-five years additional do not seem such a very long period, and probably men of this class have little doubt but they are as likely as not to reach their hundredth birth-day. That several men do reach it, and women too, we have plenty of evidence to show. Indeed there are a good few every year whose demise

show that they have exceeded a century from one to seven years and upwards. Within the past week, at Ivy Hall, Parsonstown, Elizabeth Ven died at the age of 102 years. Five years ago Mrs. Ven's husband died at the age of 109 years. Both husband and wife retained their faculties to the end. Going back to the last century in Dublin we find a man of the name of Collins dying in the Earl of Meath's Liberty, whose age is put down as 137 years. This man, if his case can be relied upon, was a regular Parr, but the Shropshire peasant is stated to have exceeded 152 years. Parr is said to have married his second wife when he was 120, and by whom he had issue. We are not thorough believers in Parr's case, or even that of Collins', but it is a pity we have no particulars of the life and surroundings of our Dublin hero.

In the churchyard of St. Kevin, in Dublin, there is a stone to the memory of one Henry Oliver, aged 136. Could Oliver and Collins be one and the same person, for the latter is reported to have died in 1749? In 1817, the death of a Mr. James Carroll of Balogurteen, Kilkenny, was reported at the age of 106. A few years previous an elder brother of his died at the stated age of 117. At his funeral he was attended to the grave by 80 children and grandchildren, the least of whose ages was above 50 years; and a son of his in 1818 was reported to be near his hundredth year, enjoying "good health and the perfect possession of his faculties." Possibly it is too late in the day for Irish antiquaries to look into the above cases with a view of proving their truth or fallacy. We could greatly extend the list of alleged remarkable Irish centenarians or more than centenarians, but perhaps the above will be suggestive for contemplative minds for the present.

Pendant to the above, we may add that in respect to octogenarians and nonagenarians the Irish capital and the chief cities and provincial towns supply a goodly list in all ranks of life—literary, professional, and commercial. In 1817 the Right Hon. David La Touche, the head of the old banking firm of that name, died at St. Catherine's, Dublin, in his 88th year. The great historic bank, which forms a landmark in our history for nigh two centuries, is dissolved or absorbed at last, though the name of La Touche lives. In Dublin once the bank of the La Touches had established for itself a soundness of character equal to that of the Bank of England at the present hour. "As good as La Touche" was a familiar phrase all over Ireland, aye, and even with traders in England, for the phrase was used to convey an idea of superior solidity and sufficiency in pecuniary transactions. It is only justice to state that, apart from the religious and party instincts of the La Touches evidenced in bygone years, their wealth was associated with much public spirit, liberality, and humanity, and the family were generally respected and esteemed.

Speaking of remarkable deaths of the year 1817-18, we may note that of Alicia Le Fanu, who died at her son's house, Royal Hibernian School, Phoenix Park. She was the wife of Joseph Le Fanu, and sister to the Right Hon. R. Brinsley Sheridan. Mrs. Le Fanu, like most of her family, was a lady of genius and literary attainments. She was author of "The Flowers, or the Sylphid Queen: a Tale," 1810, and "The Sons of Erin, or Modern Sentiment: a Comedy," 1812. The late Joseph Sheridan Le Fanu, the novelist, for some time a proprietor of Irish literary undertakings and a writer on the old *Dublin University Magazine*, was of the above family. Talking of the Sheridans, in the same year (1817) the widow of Richard Brinsley Sheridan died at Frogmore after a long and severe illness, her husband having only died the year previous. Mrs. Sheridan was the youngest daughter of the Rev. N. Ogle, D.D., of Kirkcubright, Northumberland, and Dean of Winchester. The sad misfortunes of Sheridan left him unable to provide for his wife, but her father by his prudence secured her a settlement that ensured her in-

dependence while she lived, at the same time producing a provision for her son. Alas, and alas! the great orator, whose sorrows were partly of his own creation, expired near his dying wife, for the devoted creature suffered and lingered long before she breathed her last. The chapter of misfortunes to the Sheridan family in the space of a few months were heavy and crushing. Thomas Sheridan, the only son of Richard Brinsley Sheridan, by his first wife, the accomplished Eliza Linley, the popular singer, whom he married secretly—died in 1817 also, a few days before the widow of his father. Tom Sheridan possessed much of the wit of his brilliant parent, but he unsuccessfully contested seats in Parliament both for Liskeard and Stafford. Later he found it necessary to repair to Madeira in consequence of a pulmonary affection, to which place he was accompanied by his wife. Tom acted for a short time as manager of Drury-lane Theatre. Next he is provided by influence with the office of colonial paymaster at the Cape of Good Hope, but his health continued to decline, and he fell a martyr to his disease in the settlement. His body was brought to England. He left a widow and several children at the time of his death wholly unprovided for. The genius of the family was hereditary, and it would seem, by some wayward fate, so were their misfortunes.

*Obiter dictum*, or by way of postscript, we will add here the names of two or three literary worthies who attained an advanced age, and who led lives of great mental activity. Richard Lovell Edgeworth, the father of Maria Edgeworth, died in 1817, at the age of 72, and his gifted daughter, an educationist and racy novelist, died in 1849, at the age of 82. Lady Morgan, who died in 1859, and was active and cheery to the last, had reached the age of 73. A literary active life, with health and temperate habits, and a fair reward for one's labours, is, after all, conducive to longevity.

"Martin Doyle," i.e., the Rev. W. Hickey, forty years since, in his "Hints to Small Farmers," and other works of a kindred kind, besides his contributions to the first volume of the *Dublin Penny Journal* (and later in the *Irish Penny Journal*), effected much good in the cause of Irish industrial education. In fact in matters of domestic economy and self-exertion or self-help, Mr. Hickey was a second Cobbett. He established at Bannow, in Wexford, an agricultural school which was carried on for some years with success and good results. Mr. Hickey conducted the school until his removal to another benefice. He was one of those who gave valuable evidence before a Parliamentary committee in 1830. In his periodical essays "On the Duty of Self-exertion" he gives a number of homely and wholesome illustrations as applicable to-day as when they were written. He was in the habit of interviewing the wives of labouring men in their own cabins, and lecturing their husbands as well as themselves in a kindly way, and showing them what they could do to benefit their position, if they were determined on making the effort. On one occasion, on entering the cabin of a woman whose christian name was Catty, he mildly remonstrated with her for keeping her houses so dirty and herself so untidy, and Catty replied: "Why, then, Mr. Doyle [Hickey] will you be sated, sir (wiping a dirty chair with her dirty apron, and offering it to his reverence)? 'twas the fault of that unlucky pig beyant there, that wouldn't be satisfied to ate his dinner in the bawn, but must insist on comin' into the flure—bad manners to him!—and I can't keep it clane with him. But indeed the *bownen* wouldn't thrive outside in the cold auyhow." Hickey reminded her if she had accustomed to feed the young grunter out in the little pig yard, the familiarity would be prevented, and he told Catty plainly that her own slovenly habit and disposition was the chief cause of the irregularities. He also told her he found her squatting at her ease over the remains of the fire with the dhudeen in her mouth when he entered, and



that she endeavoured to hide the sight of the pipe from him by popping it lighted and all into her pocket. To this indictment Catty replied, smiling, yet blushing from being caught in the unfeminine employment of smoking, "Indeed, sir, the truth is the best; I was smoking a little to ease my heart of the water-flash that bothers it, and the pipe is a great comfort to a poor body in hardship, and I was thinking all the time that the pipe was betune my teeth, and the pig fornent [before] me, ating the *lock* of skins, that he'd soon be afther putting clothes on myself and the childe, let alone the one that's coming, and wasn't that a comfort to me?" Catty had a philosophising spirit, but in answer to Mr. Hickey's question why she put off so long the preparation for her confinement, replied: "Why then, I was thinking there was time enough yet, *God is good*, and won't take a poor body short. And besides, I am no great hand at the needle, had I the *makings* itself." After a series of other questions and answers, in which Catty always had a good excuse to make from her own point of view, Mr. Hickey advised Catty to give up the pipe, and put up the pennies that she expended upon tobacco. She could not realise that a penny a day was upwards of thirty shillings in the year, and that in two years' time her tobacco money would enable herself or her husband to buy a small cow, which she could feed on her own patch of garden, with an occasional run on her good adviser's field, which he was willing to grant her. She liked the sup of milk, to be sure, for her children and her husband, but—there was always a but—"I was thinking," replied Catty, "of a sister-in-law of mine who gave up the pipe, and bought a pig with the savings, and the pig had her leg broke and never did any good till she died—so she might as well have had the satisfaction of the pipe; howsomever, this is no maxim, to be sure, and surely I'll break myself off the pipe and see about the fittings next week." Catty always put off until the morrow or the next week what she should do at the present hour, and when pushed into the corner by Mr. Hickey, by the cogency of his argument, she at length replied, "Well, then I will see about it to-morrow, and sure God is good, and may give us another boy to help us in our old age. As for the girls, I would not wish for them at all; they're too chargeable and brittle, and in the end if you haven't a couple of cows and a feather bed to give them it is no easy matter to get rid of them." Catty had a hankering after the boys, and could not realise the usefulness of girls—of having one to attend to her in illness, to help her to keep the house clean, to make her Sunday gown, to read an agreeable story out of books she got as premiums at school, and do sundry other services. Despite the best picture that Mr. Hickey could draw as to the value of a girl, Catty could not see it. Being convinced against her inclination, she admitted that the girls might and could be good, and he all that Mr. Hickey stated, but her heart was, after all, in the boys. The sequel of the story may be briefly stated:—Catty put off the preparation for her confinement to the last moment, and suddenly gave birth to a chopping boy, according to her sanguine wishes, but, sad to relate, to a puny girl also, contrary to her expectations. The twins and their mother lay in considerable danger for some time without the needed fittings, or any of the common decencies and comforts that such occasions demand. The above is a good practical illustration of bad management and lack of self-exertion among many of our countrywomen, and similar cases at the present moment are not rare. In town and country thrift and domestic economy are not studied as they ought to be, notwithstanding the great advance of education within the last few years. The wives of many of our struggling men, not only those of the working classes, but those above them in the social scale, are help-eats instead of helpmates. It is not derogatory to a woman to work if her services are needed for her own home—to

work at what is suitable to her sex. It is a man's duty to work as long as health and strength are given to him, and it is the bounden duty of a woman, if she can do it, to assist her husband, if her home and family and the wants of the household demand her aid.

H.

### DESIGN FOR SEMI-DETACHED VILLAS.

In present number we illustrate a design for semi-detached villas in that peculiar render of "Queen Anne" of which Mr. Norman Shaw is the master. The external walls are of red brick; the roofs and hooded gables are covered with dark red tiles; the coves, cement, and the general woodwork are painted white.

### CORRESPONDENCE.

#### PROPOSED MEDICAL LEGISLATION.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I find in the IRISH BUILDER of the 1st inst. a paragraph expressing satisfaction that Dr. Lush's Medical Bill has been shelved. You describe that measure as having been "promoted in the interest of a narrow and intolerant section of the medical profession, who desired to create a monopoly of practice and render illegal all kinds of curative medicine unless administered by them." You say you "desire to put down quacks of all kinds, but would be sorry to see people prevented of availing themselves of the aid of bone-setters, or compelled to take mineral instead of herbal medicine whether they believed in its efficacy or not." I am afraid that the author of this paragraph must have read the medical bills now before Parliament with about the same amount of attention as that which was given to them by Mr. Sergeant Simon and Mr. Burt who moved their rejection.

Not one of those bills ever contained any proposal, either to restrict the freedom of the public to be poisoned or cheated if they pleased, or to restrain any quack from practising and taking fees. All that is insisted on is that these quacks should not obtain those fees on the false pretence that they are duly qualified medical men, that they should not represent themselves as having been properly educated, examined, and licensed, and entitled to make use of medical titles. The whole purport of these bills is to erect a standard of medico-educational competency throughout the kingdom; to ensure that no one shall be entitled to represent himself as a registered medical practitioner, unless he possesses a certain definite amount of knowledge and skill. Those who do not so represent themselves may practise as they please under cover of as many falsehoods as they please, use what means they please, and take what fees they please. The sole restriction upon unlicensed practice imposed by these bills is that which has been the law for the last twenty years, and it is as much a feature of the Government Bill as of Dr. Lush's.

I do not, however, at all concur that there is anything unreasonable or impracticable in a proposal to prevent persons treating the sick public though possessing no knowledge whatever of medicine. A pharmacist is forbidden by law to compound a prescription unless duly qualified, why should it be permitted for any person to prescribe the medicine for gain without evidence of qualification? Is the quack who orders hemlock juice, belladonna, or night-shade, or who burns out tumours with caustic paste, a whit less dangerous to the community than the druggist who makes up a belladonna and hemlock liniment? Why, then, should we tolerate the one and taboo the other? Why should a layman be forbidden to trade upon a pretended knowledge of law or divinity, but be encouraged to trade upon a pretended knowledge of medicine and surgery? I certainly fail to understand the reasoning,

and it seems that statesmen in other countries are equally hard of comprehension, for in both France and Germany unlicensed medical practice for gain is absolutely forbidden, and is punishable by law.

ARCHIBALD H. JACOB,  
M.D. Dub., F.R.C.S.

April 8th, 1879.

### THE MACHINERY OF GAS TRADING. TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the report of the last meeting of the shareholders of the Alliance and Dublin Consumers' Gas Company, it is stated that the Chairman called "their attention to the very prosperous state of the Company. The balance which would be brought forward after the payment of the [usual 10 per cent.] dividends was £32,404," which he had stated was due to their increased revenue from the sale of gas, &c. According to the report, no mention whatever was made by him of the results of the average pressure of 2½ inches on the gas passed through the consumers' meters, which according to the Act of Parliament are tested to register correctly the bulks of gas passed through them under a pressure of half an inch, nor that he gave any hint that the indications of those meters must be fabulous when the pressure on the gas passing through them ranges from 2 to 3½ inches.

It was also stated that the price of gas had been reduced three-pence per thousand since the 1st of January. Consumers naturally expected that the amounts of their last quarters' gas bills would be proportionally lessened; but to the surprise of all who have spoken to me on the subject, the amounts of those bills are 20 per cent. greater than those of the corresponding quarter in the last year. Such increased amounts are due to the fictitious indications of the meters caused by the increased average pressure on the gas passing through them. In the face of all this, the Corporation have neglected opposing in Parliament the passing of the new gas bill, although they are well aware of the results of such unjust pressure.

In fact the usual weekly notice of the amount of pressure on the gas supply has not appeared in the two last published reports, thereby leaving the ratepayers to suppose that the gas interest in the Corporation was endeavouring to suppress the publication of that pressure, and so connive at the quiet continuance of it.

During his examination before the Municipal Boundaries Commission on Wednesday, Mr. Beveridge, the town clerk, is reported to have stated that, "the Corporation got gas last year at £2 11s. 7½d. per lamp. The consumption of gas in each lamp being 4 cubic feet per hour, and its price being 4s. 6d. per thousand, such an amount of cost for the gas consumed in each lamp is nearly one-sixth more than it would be if the pressure on it was not beyond the fair working powers of the meters. In 1871-2 there were 3,330 lamps in Dublin, and about that time in published letters of Mr. Cotton there appeared the following statements:—"The average pressure (on the gas) in the heart of the city did not exceed eight-tenths;" and, "the quantity of gas consumed per annum in the public lamps is thirty-one millions." Further, in the Corporation accounts for that year we find that the cost of the gas for the public lamps, at 3s. 11d. per thousand, amounted to £6,341 13s. 7d., about £1 18s. 1d. per lamp, per annum, the burner consuming then, as now, 4 cubic feet per hour. Had the price of the gas consumed during that year been 4s. 6d. per thousand, the cost for each lamp would only have amounted to about £2 3s. 9d., or about 7s. 10d. per lamp less than their present cost with an average pressure on the gas of twenty-six-tenths, and the public lamps were extinguished much earlier every morning in 1878 than they had been in 1871-2. I therefore submit that if Mr. Beveridge did not intend misleading the Commissioners, his evidence might have been more instructive.



Prior to 1874 the bills furnished by the gas company were always dated from the last day in one month to the last day in the following third month. Since that period all their bills are undated, and I respectfully suggest that consumers would act rightly by refusing to pay the amounts of such undated bills, and insist on having correct dates on the face of them.

11th March, 1879.

JAMES KIRBY.

#### NOTES OF WORKS.

The tower and spire to complete St. John's Cathedral, Limerick, has been commenced by Mr. P. Kenna, the contractor. The cost is about £8,000. Messrs. M. and S. Hennessy, of Limerick and Cork, are the architects; and Mr. J. M'D. Bermingham, Dublin, surveyor.

A branch bank has been commenced at Ennisecorhy, County Wexford, by Mr. M. Lynch, builder, for the Bank of Ireland, from designs by Mr. S. Symes, architect. Quantities supplied by Mr. Bermingham.

This bank are also about to erect a branch at Ballybay, County Monaghan, and one at Bandon, County Cork, from designs by their architect, Mr. Symes.

At Brittas, Queen's County, a mansion is being erected for the heirs of the late Captain Dunne. It is faced with punched stone, having cut stone dressings. Messrs. Millar and Symes are the architects, and the contract is being carried out by Mr. Morris, of Sligo, for about £7,700.

The following works in the town of Newry are being carried out from the plans and under the superintendence of Mr. William James Watson, C.E., architect:—

A large block of buildings in Margaret-square and Margaret-street, for Mr. Felix O'Hagan. The buildings are three storeys in height. The ground floors are arranged for shops, and the first and second floors as private residences, show-rooms, &c. The buildings are of Gothic design, constructed with Belfast brick and Dungannon freestone dressings. The works are being rapidly carried on by Mr. Adam M'Griffin, contractor.

New workshops and warerooms in Hill-street, for Mr. John M'Arevey, cabinet-maker. Mr. Adam M'Griffin is the contractor. The works to be completed early in June next.

Grass seed stores and warehouses, with engine-house, on the Mall, for Messrs. Martin, Nesbitt, and Irwin, are in courses of erection, and are to be completed by the middle of June. The buildings are four storeys in height. Principal front is of Belfast brick, relieved by coloured bands of brickwork. The works are being executed by Mr. Adam M'Griffin, builder.

#### PROVINCIAL SANITARY MATTERS.

ROBERTSTOWN.—At a meeting of the Naas Union Sanitary Authority in past month, the following communication was read in reference to the alleged diphtheria in the town:—

Office of Public Works.

I am directed by the Commissioners of Public Works to state for the information of the board of guardians of Naas Union, in reply to your letter of the 13th, that although grave cause exists for doubting whether any case of diphtheria occurred at Robertstown Royal Irish Constabulary Barrack at all, they have had it carefully examined, and every necessary sanitary improvement has been directed to be carried out; but they desire to call attention to the fact that all the sewage of this village is suffered to flow into the canal, to the great detriment of the only potable water which the district affords, and would suggest that immediate steps be taken to remedy such a very serious evil.

E. HORNSBY, Sec.

The discussion that ensued on the reading of the above letter might be described as "rich" in an ironical sense. Some of the sanitary guardians of the town have certainly peculiar ideas respecting nuisances and river pollution. Rivers and canals, in their

opinion, exist for the sole purpose of providing an outfall for the sewage of their districts. Sewage-impregnated water, in the opinion of the chairman, Major Borrowes (a deputy-lieutenant, by the way), is a "nourishing nuisance." The same gentleman waxes jocular on mention of the Barrow river. What has the medical dispensary officer or other health officer of the district to say as to the intended proposal of turning the sewage into the Barrow, and having it "wheeled off" to Waterford? What has the Irish Local Government Board to say? All that we will say at present is, Ireland is indeed to be pitted with such a despicable sanitary representation as what the following proceedings disclose:—

The Clerk asked what answer was to be given to the Commissioners of Public Works?

Mr. Trench—Make a system of drainage for Robertstown.

Chairman—It is a great pity Mr. Ireland is not here to see this letter.

Clerk—It appears by that that the whole sewage of the town runs into the canal, and that is the only water the people have for drinking.

Chairman—I should say it is a nourishing nuisance. They have lived on it and thriven on it for a good many years.

Mr. Halligan—There was no nuisance in Robertstown, or any fever for the whole season. There was not a place in the union more exempt from disease. Hundreds upon hundreds use that water along from Robertstown to Dublin. But I think it is most necessary to turn the sewage into the river.

Mr. Trench—I should not like it to be turned into mine.

Mr. Halligan—It is not your river; it is the Barrow river.

Chairman—All right; then the Barrow will wheel it away.

Mr. Halligan—Let it wheel it off to Waterford.

Chairman—Would you like to refer this matter to Mr. Ireland?

Mr. Halligan—Oh, certainly; I think it would be most desirable. It would only cost the smallest trifle to turn it into the Barrow, because there is a branch of the river within twenty perches of the town.

Mr. Trench—I believe the river is lower than the canal?

Mr. Halligan—It is 15 ft. under it.

The matter was referred to Mr. Ireland for consideration.

#### DEATH IN THE CHIMNEY.

A FEW days ago in Sheffield, a burglar met his death in a most remarkable way, although in pursuit of his profession. This death was as painful as the circumstances were uncommon. Several attempts were recently made to effect a robbery on the premises of a Mr. Fieldsend, a pawnbroker, of Broad-street Park. On the morning of the 10th inst. a member of the gang who had been planted in the spot, went down Mr. Fieldsend's chimney. The flue measured about twelve to 15 in. inside, and having dropped some 15 ft. or so, the burglar stuck fast. The shaft is stopped by a large stone which has been built across it, and immediately above the stone two flues come into the chimney, one from the fireplace of Mr. Fieldsend's kitchen, and the other from that of a neighbour's. It was impossible for the man to get down either of these, and he could not return up the chimney, as he was wedged tightly in. Though a little fellow he had no room to get his arms down, so that he might extricate or raise himself, and he consequently had to remain until assistance came or he was discovered. Mr. Fieldsend and family reside on the premises, and before daylight some curious noises were heard, but they were not sufficiently loud to create any alarm. Mrs. Hunter, a neighbour, thought it was the sweeps. About half-past five o'clock Mrs. Hunter got up and lighted the fire in her kitchen, and when she did so, she thought she heard moaning up the chimney, but was not quite sure as to the fact. Shortly after nine o'clock she went upstairs, and thought again that she heard noises in the chimney. She was then certain there was moaning within it, and running downstairs she hastened to Mr. Fieldsend and acquainted him with the fact that there was someone up the chimney.

That gentleman regarded the announcement as incredible. He partook of breakfast, and whilst reading the newspaper his wife poked the fire. Immediately afterwards she also heard groans, and told him of it. Mr. Fieldsend went into the upper warehouse, and could then hear distinctly sounds as if some one was in the chimney. He communicated with the police, and Detective-Superintendent Battersby, with Detectives Jackson, Moody and Smith, were soon upon the scene. It was evident that there was someone in the flue, and Battersby sent for Mr. Hallam, police-surgeon. Mr. Thomas Jackson, builder, was fetched, and pulled a portion of the chimney down in that part where it passed through the upper warehouse. An aperture sufficiently large having been made, Detectives Moody and Smith examined the interior, and a considerable distance beneath them they saw a man who had his arms tightly compressed in front of his face, and who appeared to be almost buried in soot. He was groaning very much, but the detectives attempted to cheer him up by saying that they would have him out in a minute or two. The heat ascending from the two flues was overpowering, and the poor fellow must have been in great agony. After using all their strength the officers succeeded in drawing him up to the aperture, and from thence to the floor of the warehouse, where they laid him down. One of them emptied his mouth of soot, whilst the other attempted to give him some brandy and water; but he died immediately on being released from his dreadful position. Mr. Hallam arrived in a few minutes afterwards, but of course medical service was of no avail. The body was removed to the Old Harrow public-house, and placed in a stable at the back. It was evidently that of a man twenty-four or twenty-five years of age, slightly built, about 4ft. 5in. in height. His clothing was very shabby. In his pockets were found 5s. 4d., but nothing which could then lead to his identification. The body was afterwards identified as that of Robert Albert Johnson, who had lived with his mother at Navigation hill, Blast-lane, one of the lowest localities in Sheffield.

The above form of death would not be an inappropriate one for a "Jerry" builder, but though bad as that unscrupulous rascal is we would like to afford him time for repentance. Thus we would show him more mercy than he and his fellows show victims whom they rob first, and their wretched houses slowly though surely kill afterwards. No one, however, would feel greatly concerned for the safety of a "Jerry" jammed for a few hours in one of his own chimney-flues, particularly in one of his run-up "eligible" houses awaiting for its first tenant. If the house in question stood isolated, it might be safely anticipated the "Jerry" would be able to extricate himself, for it would not require much pressure to burst the brick work asunder, letting in a body of light, and out a body of corruption.

A NATIONAL THEATRE.—The prospects of the realisation of a long-desired National Theatre are brightening. Mr. George Godwin, of the *Builder*, and representative writers in the *Athenæum* and other professional literary and art journals are keeping the subject before the public, and treating the question and its belongings in a judicious way. Mr. Planché, the *Somerset Herald*, an authority of no light weight on dramatic matters, has ably discussed the pros and cons of the project. We trust the discussion will not be allowed to die out, and that we will be able shortly to announce to all true lovers of the drama that the necessary organisation for giving a practical embodiment to the idea of a National Theatre, has assumed a tangible form. Whether a Government subsidy is possible or not at the present time need not stand in the way, for there is sufficient wealth and co-operative spirit in England, if wisely encouraged, availed of, and directed, to ensure the erection and maintenance of a truly National Theatre—a theatre at once a nursery of dramatic genius, and a mirror of all that is worthy of reflection in connection with human nature, in its highest aspirations, and its holiest and most heroic achievements.



## HOME AND FOREIGN NOTES.

The annual meeting of the British Medical Association takes place this year in the grounds of the Queen's College, Cork. In connection an exhibition of hygienic appliances will be held in the new plant-houses, open free to the public during the visit of the association. A sub-committee, with Mr. W. N. Shaw and Mr. Arthur Hill, architect, honorary secretaries, have undertaken the arrangement of the exhibition.

**SEWAGE UTILIZATION.**—The first premium of £150, offered by the Stoke-on-Trent Council for the best scheme of dealing with town sewage, has been awarded to Major-General H. Y. D. Scott, C.B., F.R.S., and Mr. Gilbert Reilgrave, on behalf of the Scott's Sewage Company (Limited). The second position in the competition, with an award of £100, was assigned to Messrs. Bailey, Denton, Son, and North.

**A NEW WORKING-MAN POET.**—A London publishing house will shortly introduce to the British public a new Scotch working-man poet in Mr. Alexander Anderson, whose "Songs and Ballads" are in the press. Mr. Anderson is a "surface-man" in Dumfriesshire, whose writings have gained him considerable local reputation. Like his countryman, Mr. David Wingate, he now appeals to a larger audience.

**OGHAM INSCRIBED MONUMENTS.**—A very interesting and historical work, by the late Richard Holt Brash, M.R.I.A., author of the "Ecclesiastical Architecture of Ireland" (first published in the pages of the *Irish Builder*) and other antiquarian essays, is now being published by Messrs. George Bell and Son, London. The full title of the work is—"The Ogham Inscribed Monuments of the Gaedhul in the British Islands." The volume is edited by Mr. George M. Atkinson. This work will certainly possess an interest for British and Irish philologists and antiquaries.

**THE OLD MASTERS.**—Several English collectors will, says the *Academy*, contribute to the exhibition of drawings by the Old Masters, which is to be held at the Ecole des Beaux-Arts next month. Mr. Malcolm, whose splendid collection is now well known in England, will send some of the choicest of his Italian and German drawings, and Mr. Mitchell will also be represented. One of the features of the strongest attraction in the programme of the exhibition is the promised display of the Raphael drawings belonging to the Duc d'Annam.

**THE BISMARCK STATUE.**—The statue of Prince Bismarck, at Cologne, unveiled on the 1st inst., the 64th birthday of the Prince, is the work of the sculptor Fritz Schaper, of Berlin. The cost of it—40,000 marks—has been covered by two legacies for the purpose—one of 20,000 marks by Herr Christoph Andrae; and the other, also of 20,000 marks, by Baron Friedrich von Diergardt. The pedestal is of reddish polished granite, and bears on the western side the inscription, in golden letters, "Bismarck." The bronze statue is 283 metres in height.

**STRASBURG CATHEDRAL.**—The works at Strasburg Cathedral, which had been suspended during the winter, have recently been resumed, and are being pushed forward with great vigour, with a view to their completion during the present year. The artistic bronze ornaments shown in the Paris Exhibition of 1878, are to be fixed in their places next month. In the interior of the building the decorative painting in the choir, which has been contemplated by the Municipal Council since 1839, is soon to be resumed. The last course of stonework forming the cornice of the cupola, is already laid, and the enormous wooden framework for the dome is commenced.

**GLASGOW PHILOSOPHICAL SOCIETY.**—At a meeting of this society on the 19th ult., Mr. W. P. Buchan read a paper on house drainage. With the aid of diagrams he explained various methods at present in operation of house drainage and ventilation, and urged the importance of greater attention being paid to the disconnecting the house pipes and the common sewers. The system of house drainage in use in many cases he characterised as a disgrace to modern civilisation, and argued that no building should be allowed to be occupied until the drainage and sanitary fittings had been examined and reported upon by some qualified official, whose report should be open to the inspection of the public. Mr. Honeymann said that the subject of house drainage was a most discouraging one, notwithstanding all the lessons the public had got. The state of matters which existed in our houses was simply incredible. Professor James Thomson, Mr. Watson, and others made some remarks on several of the methods of ventilation explained in course of the paper.

Perforated limestone and pieces of other hard rocks riddled with the fine bore holes of a small marine boring animal, are very common on the coast of Dorset and elsewhere. The perforation of marble by a marine boring animal—the sponge known as *Cliona sulphurea*—has been recently observed and noticed by Prof. Verrill. It seems that a vessel laden with Italian marble was wrecked in 1871 off Long Island, and the exposed portions of the alaba which occasionally come to light, are found to be thoroughly penetrated to the depth of an inch or two by the crooked irregular borings of this sponge, and reduced to a complete honeycomb, readily crumbled between the fingers. Beyond these borings the stone is still perfectly sound and unaltered. Prof. Verrill notices this as the first instance recorded where the sponge has attacked limestone, since calcareous rocks do not occur along the portions of our coast inhabited by it; and he suggests that its demonstrated ability to destroy such rocks so rapidly might have an important practical bearing on the use of limestone structures for submarine works—*Engineer*.

**DEATH OF SIR ANTHONY PANIZZI.**—The death is announced of Sir Anthony Panizzi, K.C.B., late principal librarian at the British Museum, in the 82nd year of his age. Sir Anthony was by birth an Italian, having been born at Brescello, in Modena, on the 16th September, 1797. He was educated at Reggio, and at the University of Parma, where at the age of 21, he obtained the degree of Doctor in Law. Taking part in the Piedmontese Revolution of 1821, he was betrayed, and arrested at Crenona, from which place, however, he made his escape, after having been condemned to death, and all his property confiscated. Mr. Panizzi took refuge at Lugano, and next at Geneva, whence with other Italian fugitives he was expelled at the instance of the Austrian and Sardinian Governments, and, making for England, reached this country by way of Germany. He carried on the profession of a teacher at Liverpool for several years, and in 1828 was appointed Professor of Italian in University College, London. After holding this post three years, Mr. Panizzi was nominated by Lord Brougham, then Lord Chancellor, to the office of assistant librarian at the British Museum, and in 1837 he was promoted to the keepership of the printed books. Here his literary judgment and his administrative ability found ample scope for the exercise of such gifts; and although at the same time the selection of a foreigner for such an important and responsible post was freely criticised, experience amply justified the wisdom of the choice which has been made by the trustees. Under his direction the Book Department of the British Museum became one of the most complete libraries in the world, and the facilities for study were enormously increased. In less than twenty years the number of volumes in the collection had more than doubled, and its value was thereby so much enhanced as to obtain recognition from the Legislature, with an augmented Parliamentary grant. By his energy and perseverance a catalogue was compiled which furnished an easy and expeditious reference to the hundreds of thousands of volumes in the library. After many years of service as principal librarian, Mr. Panizzi, when nearly seventy years of age, resigned an office in which he had done so much good work. The Government of the day, recognising his merits, awarded him the full amount of his salary and emoluments as a retiring pension. In 1869 he received the distinction of K.C.B. The deceased gentleman had lived to enjoy his retiring pension nearly thirteen years, having resigned his position in June, 1866, after more than a generation of service in the British Museum.

**ASBESTOS.**—The great importance of this substance rests on its peculiar qualities, being indestructible by the action of fire and acids, fibrous, and capable of being woven into cloth or made into paper, and often as fine as flax or silk. According to Pliny, its sole use seems to have been for winding-sheets in which to burn distinguished dead, or to be spun into napkins, which were used only at great feasts, and from time immemorial in those localities where the substance is found, the peasantry used it in the form of wicks for their lamps, for which purpose its power of capillary attraction renders it most serviceable. Common asbestos is not indigenous to any special portion of the globe, but is found in abundance in most countries, and is more or less fibrous, but of a powdery quality. It is found in the veins and seams of the serpentine formation of rocks, which are blasted to procure the fibre, and rarely is it discovered in lumps; thus the quarrying process is similar to the ordinary routine of reaching mineral productions. The strong, long, fibrous quality, which is found in sufficient quantities for commercial purposes, is taken from the Italian Alps, at elevations of several thousand feet. The

chief employment of asbestos is steam-packing for pistons and pump rods, stuffing-boxes, manhole-plates, and a species of felt for covering boilers and steam-pipes. No substance possesses greater adaptability to these purposes than asbestos, whose properties specially recommend it to resist a high temperature, moisture, friction, and flame itself. On the American continent, where the manufacture of asbestos is assuming prosperous conditions, lining or sheathing paper for ceilings, floors, and partitions is attracting considerable attention. These papers are made in rolls of any thickness or length, can be printed with any desirable pattern, and render buildings not only safer in case of fire, but cooler in summer and warmer in winter. The varieties of asbestos are almost innumerable, and no two localities seem to yield precisely the same fibre. In Great Britain the asbestos business is centred in the Patent Asbestos Manufacturing Company, Limited, whose advertisement will be found on another page. The enterprise of this firm in utilising a well known mineral that has waited more than 2,000 years to become a flourishing article of commerce, is attended with a remarkable degree of success. It is stated that this manufacturing company is the only one throughout the world who make the asbestos packing. It has had sufficiently severe trials of its endurance and adaptability by the most eminent and practical engineers, and their opinions regarding its valuable properties are unanimous. Among scientific men, asbestos has of late years excited the keenest interest, and has gained their unqualified approval as being pre-eminently the first in adaptability of all known substances to uses where incombustibility and power of resisting acids and friction are essential. Not the least among the items of their manufactures is their patent covering for boilers, steam pipes, &c. As it is not in embryo, the public confidence which the Company's wide range of experience of the material, with which they have revolutionised many points in mechanical appliances, has encouraged their experiments with this new covering, and the most satisfactory results may reliably be expected from it. It is applied like ordinary cement or plaster, and is easily manipulated.

## TO CORRESPONDENTS.

**MOORE'S "JUVENILIA."**—In reply to correspondents, we may say here that the paper on Moore, his schoolmaster, and the historic associations of Augier-street (the birth place of the poet) is now re-published in pamphlet form with additional matter, and may be had through all booksellers and newsgates, or through the office of this paper.

**J. B. (Cork).**—Your wishes will be attended to.

**A MANUFACTURER (London).**—Cannot appear otherwise than as an advertisement.

**C. E. (Glasgow).**—We are afraid after due consideration that the subject would not be of sufficient interest, and the expense of the illustrations would be greatly out of proportion with the benefit resulting to all parties.

**A LADY.**—The verses are indeed above mediocrity, but the subject is not suitable for these columns. Will our fair correspondent try her pen on such themes as art or health, self-help, or thrift. A sanitary song would be worthy of a lady's pen, and in wedding the Muse to health a woman would not cease to love Nature, as human nature, the whit less.

**T. C.**—Why not put your signature to the letter. It is a good one, but if printed as an anonymous communication (in this instance) it will lose all the effect it would otherwise have.

**SIR RICHARD MORRISON.**—A young student of architecture is informed that this worthy architect was a pupil of James Gandon, and that he died as late as 1849, at an advanced age, and is buried in Mount Jerome Cemetery. His talented son excelling the father in some particulars, predeceased his parent in 1838, and was known by the name of William Vitruvius Morrison.

**RECEIVED.**—M. A. E. B.—"An Old Resident of Augier-street" (we will look up the matter).—C. R. Trinity College (many thanks).—J. R.—R. D. S.—M. D. (the matter has been noticed already).—S. A.—An Artisan (yes).—F. B.—G. F. S.—R. E., &c.

## NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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## Illustration.

NEW BUILDINGS, MELBOURNE.

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## THE IRISH BUILDER.

VOL. XXI.—No. 465.

ST. CANICE'S CATHEDRAL,  
KILKENNY.\*

**T**O those who do not possess the excellent history of the Cathedral of St. Canice, by the Rev. James Graves and the late John G. A. Prim, the handbook of Mr. Langrishe will act as an acceptable and useful guide, as well as affording a good epitome of most of the objects of historical and architectural interest in connection with the Cathedral of St. Canice. The handbook commences with an account of the See of Ossory, founded in the fifth century, and, in proceeding, takes note of the important changes, incidents, and distinguished ecclesiastical dignitaries and other celebrated personages who in every succeeding age and in one form or another had a hand and a voice by their names and deeds in contributing to the annals of the cathedral, and not only to that edifice, but to the history of Kilkenny.

Mr. Langrishe briefly yet comprehensively and clearly describes each important event and structural alteration through mediæval times, down to the more modern reparations in the last century and the restorations in the present century and in our own time. The architectural peculiarities of the cathedral are pointed out, and the opinion of Mr. G. E. Street in respect to its style and supposed builders. Without accepting Mr. Street's beliefs (which are, however, worthy of consideration, from his acknowledged ability and position) it was not amiss to include the reasons he gives for his views. Mr. Street has stated, from the similarity of the

details of St. Canice and Christ Church Cathedral, Dublin, with those of St. David's Cathedral, Strata-Florida Abbey, and other ecclesiastical buildings in South Wales, that the designers and builders of both these Irish cathedrals came from there. It may be quite natural to suppose that among the followers of Strongbow came over building craftsmen as well as other artificers, but we doubt that they were better acquainted with the architectural details evidenced in St. Canice and Christ Church than our native craftsmen. We think that the late Mr. R. R. Brash has clearly proved that the builders of our Hiberno-Romanesque churches, and even some of our Early Pointed examples, were little indebted to the builders of the sister kingdom. The Norman element must, of course, have exerted an influence in England, as it did in this country; but in many of our Gothic structures there are indigenous architectural features which stand boldly forth, evidencing native original design and practice, and not merely servile imitation. Assimilation there was, no doubt; but it was of that nature which re-created while it absorbed, yet still preserving almost intact an architectural style peculiar to this island. In our early oratories, as well as in those Gothic churches immediately succeeding them, the peculiarities of style inherent to the practice of our native craftsmen-builders are discoverable in many directions in our national monuments. The circumstances of our people and the condition of the country did not generally allow of the erection of such large structures as are to be seen in many parts of the sister kingdom. Irish builders, whether ecclesiastical or otherwise, were centuries ago obliged, as they have been obliged in our own time, to "cut their cloth according to their measure," and elaborate details had to be sacrificed and more simple features adopted. Buildings of old of an ecclesiastical character in this country were long years in course of construction, owing to similar causes that have existed in more recent times and in our own day. Style succeeded style, and the original features of the building got modified, and the last fashion often overlapped the first. Indeed several of our Gothic structures show a succession of styles, due to changes, alterations, and complete departures from the original practice in fashion when the buildings were first commenced. But we must not be tempted into a long digression, however suggestive may be the subject.

As a retrospective contrast with what Mr. Langrishe writes anent St. Canice's, its style, reparations, its modern and yet again more recent "restorers," we cite an extract from an article on Kilkenny, written nigh half a century ago, and which we are of opinion (though we may be mistaken) was written by the late George Petrie:—

"We know not any place in Ireland where the lover of religious antiquities might spend a day so well as in the Cathedral of St. Canice. It is situated on a gentle eminence, and yields to no cathedral in the kingdom for the beauty and lightness of its architecture, and in size only to Christ's and St. Patrick's, Dublin. Its shape is cruciform, and consists of a choir, transepts, including lady chapel, and nave with lateral aisles, presenting a range of arches resting on columns of black marble—but these are now whitened, in consequence of the whim of a foolish economist. The nave must have been a Goth, a Vandal, a Hun, but surely not a Celt, who thus defaced these, perhaps to him gloomy pillars, by having them neatly whitewashed. In this beautiful nave are buried the Butlers, the Graces, the Purcells, and the Marshalls. Here also lies Bishop Nicholson Walsh, who, A.D. 1585, was

assaulted in open court by one James Dullard, whom he had cited before him to answer for the crime of adultery. The villain was of such respectable connexion that, though brought to justice, and executed for his crime, yet his relatives had interest enough not to permit those crimes to be recorded on marble; and so on the bishop's tomb it is merely said that he died on the 14th of December, 1585."

The reader, if he visits St. Canice's Cathedral, is advised by the writer of the above to ascend the tower, from which he will witness a noble prospect; but first of all he is told not to forget to see the stone chair of St. Ciaran or Chiarain. This chair is described in Mr. Langrishe's handbook, but a woodcut is given of it in the publication from which we have taken the above extract, as well as a view of the Ancient Market Cross of Kilkenny, "which was barbarously removed in the year 1771." This cross was inscribed on its fourth step with the date "MCCC."

Mr. Langrishe gives two interesting lists with descriptions and details of the Uninscribed and Inscribed Monuments. The latter ones are very interesting, from their quaint inscriptions and suggestiveness. Several of the monuments are unique in style, and others very characteristic, including distinguished ecclesiastics, lords, earls, noble ladies, famous citizens of Kilkenny, and renowned craftsmen. Of the latter class here are examples:—

"Here lieth William Hollechan, burgess of the City of Kilkenny, who died on the 1st day of January, 1609, and Morona Macher, his wife, who died [ ]"

This is a floor slab ornamented with a foliated cross in relief, and a weaver's fly shuttle, temples, frame of a loom, and a spool of yarn—emblems of the trade of the deceased.

"Pray for John Brennan, Carpenter, who dyeth ye 8th S. [her] 1646, and his wife Anney Glanlow, dead the [ ]"

A plain floor slab. The elaborate mural monument of David Rothe, the celebrated Roman Catholic bishop and literary dignitary in the time of the Confederate Catholics, is, we are sorry to hear, in a much mutilated condition. It bears date 1642. Mr. Langrishe informs his readers that the lights in the gable of the north transept are about to be filled with stained glass, by public subscription, to the memory of a very deserving ecclesiastic, the late very Rev. Charles A. Vignoles, D.D., Dean of Ossory for thirty-four years. The deceased was the eldest son of the Rev. John Vignoles, who had been a major in the army, and was born in 1789, being in his 89th year at the time of his death. His ancestor, the Marquis de Vignoles, was the head of an ancient Languedoc family who settled in Ireland after the revocation of the Edict of Nantes. The late Dean of Ossory freely and generously contributed funds towards the reparation of the cathedral, and to his untiring exertions much of the work executed in recent years is owing. Mr. Langrishe thus concludes his account of the cathedral, its condition, and remaining wants:—

"The noble proportions of the building, second to none in Ireland, which were in a great part concealed for centuries past, are now laid open to view, and its ample space can now be, and frequently is, utilized to the fullest extent. Its acoustic properties are excellent, especially for music; and any preacher possessing a voice of ordinary strength can fill it with perfect ease. A good deal is still wanting to correct defects, complete the restoration of the fabric, and provide it with suitable fittings; and it is sincerely to be desired that our efforts in that direction may be crowned with success; for it is, indeed, an inheritance of which we may well feel

\* "Handbook to the Cathedral Church of St. Canice, Kilkenny." Edited by Richard Langrishe, Member of the Institute of Irish Architects, Vice-President of the Royal Historical and Archaeological Association of Ireland, &c. Kilkenny: Printed at the Moderator Office.



proud, and which it is a labour of love to preserve to the honour of God, and the glory of His great name."

The handbook contains a view of the cathedral as a frontispiece, and a plan is also given at the end in reference to the position of the monuments, preceded by a list of the bishops and deans from the beginning of the thirteenth century till the present time. By way of finis we may add that the object of the author of the handbook is twofold, and, united, most commendable—to supply a long-felt want for a handy guide, and secondly, to apply any profit accruing from the sale of the little work towards aiding the Restoration Fund. We will be glad to hear that these objects will be realized in due time. Certainly the handbook is cheap and serviceable, as well as historically interesting, and should possess a general as well as a local interest for Irishmen everywhere, at home and abroad.

### GREEK AND ROMAN ORATORY, AND ITS INFLUENCES ON ART.

By C. CLINTON HOEY.

WHAT bearing has the cultivation and manifestation of oratory in its highest sense upon the fosterage and progress of art—art as associated with the profession of sculpture, painting, and architecture? This question has been asked long since, and answered from a standpoint which the world of literature and art furnished at the time. Looking back from this standpoint of upwards of a century and a quarter since, an eminent lexicographer, a master of arts, a respectable actor and Shakespearian personator, a stage manager and proprietor, a playwright and voluminous author, a lecturer on elocution—in a word, a man of genius and merit, and one acting the gentleman of culture and good breeding in the varied parts he essayed—this many-sided individual, Thomas Sheridan, the accomplished father of the brilliant Richard Brinsley Sheridan, undertook to prove the following propositions:—"That the liberal arts never flourished or arrived at perfection in any country where the study and practice of oratory was neglected. That in those countries where the liberal arts arrived at their highest pitch of glory there were no traces of them previous to the study of oratory. That the liberal arts always followed oratory in their progress towards perfection; arrived at their summit soon after that did; declined as that declined; and when that was banished, wholly disappeared." As education has a direct bearing on the progress of all arts and handicrafts, the practice of elocution (with a view to oratorical display in the senate, pulpit, and forum) must re-act upon the language of a people, and tend by degrees to its greater purity in writing and utterance.

It must be admitted that what the Greeks and Romans at one period of their brilliant history succeeded in doing, we have, as yet, failed in accomplishing, and the difficulty becomes greater and greater each year. Milton and Locke and Swift, before Johnson and Sheridan, gave us their opinions on the education of the gentleman, and Swift in the reign of Queen Anne was as earnest in his endeavours as his biographer at a later date, to influence those high in authority to establish a plain and permanent standard of pronunciation. We are told that it was in the age of Pericles and Demosthenes that

oratory was brought to its highest state of perfection in Greece, and that in Rome it was in the time of Hortensius and Cicero. Certainly both eras supply us with undoubted evidence as to the great number of celebrated characters who flourished, and in respect to Greece during a circumscribed or small space of time. It would make a long list to enumerate, but let us furnish a few of the most prominent in their different walks, including the arts:—Eschylus, Sophocles, and Euripides, in tragedy; Aristophanes, Eupolides, Crastinus, and Menander, in comedy; Herodotus, Thucydides, Isocrates, Xenophon, Plato, and Aristotle, in prose; and the same era or space produced Zeuxis, Apelles, Aglaophon, and many others in painting; Phidias, Praxiteles, Lysippus, Myro, Polyclethus, &c., in statuary and sculpture. Of musicians there are a number also whose names are handed down to us, but their works have, like those of the painters, perished. It is that argued with the life of Demosthenes the liberties of Greeco ended, and as oratory then became mute, or almost mute, the arts and it vanished together. A similar picture is presented in Roman history during the era above alluded to, and it must be admitted that a great number of her most remarkable men flourished together, or within a stated time,—for instance, Lucretius, Virgil, Horace, Catullus, Propertius, Ovid, Tibullus, Cornelius, Phædrus, Gallus, and several other celebrated poets whose merits are highly extolled, though but few of their works have reached us, owing to the devastations of despots or barbarians.

In the same era we have Julius Cæsar, Sallust, Livy, &c., and Rome about the same time produced her Vitruvius and all or most of her eminent painters and sculptors. Oratory certainly declined shortly after the loss of Roman liberty, and so to a great extent did the arts. If the arts appeared in their highest state of lustre in the reign of Augustus after the form of government was changed, it must be allowed on the other hand that the brilliant artists themselves were educated and bred up during the highest period of the republic.

The reign of Augustus was peaceable and long; he evidenced liberality and discernment, and acted in unison with his advisers in rewarding meritorious men. His patronage should have led to more lasting results in the fields of art by giving a stimulus to their study and practice, but the marvellous works and men of his reign were not perpetuated by counterparts. Augustus lived to admire and encourage artists, but his influence did little or nothing to produce their equals after his time. Was the failure wholly or in part attributable to the decline and neglect of oratory? Some ancient writers, as well as modern ones, answer in the affirmative, and furnish us with strong reasons, if not proofs, that their conclusions are right. Paterculus, a Roman historian who lived thirty-one years into the Christian era, after quoting a number of celebrated names in various walks, great poets, orators, and historians, goes on to say:—"Whoever diligently traces the characters of the time will find that the same thing has happened to grammarians, statuary, painters, and sculptors; and that the meridian of every art has been of an extremely short duration. Whilst, therefore, I am continually searching after causes why this and the preceding ages have united men of the like genius in the same course of study and

improvement, I find none upon the truth of which I can absolutely depend." Paterculus may be said to have established a fact, but failed to satisfactorily convince himself of the reasons that led to it. Dubos, a celebrated French writer (1670-1742), in his "Critical Reflections on Poetry and Painting," meditated on the same subject as the Roman historian, and though he has given us a number of pleasing and ingenious ideas, he hesitates to conclusively establish a cause. Sheridan attempted the solution by a new hypothesis, which was neither more nor less than that oratory was the fountain from which alone all the liberal arts flowed, and he devoted several chapters to prove his propositions. As we said already, his standpoint was far different from what it would be to-day were he alive. Looking back from the middle of the eighteenth century is somewhat different from the last quarter of the nineteenth, surrounded by all the marvels that have since accumulated in the fields of discovery and superadded to by the genius and skill of man in science and art triumphs. Apart from the latter conquests a certain number of truths still exist and will always exist intact, no matter how long the world may last, or how much they may be modified by a new colouring, owing to the advance of knowledge. What has been stated in respect to Greece and Rome, and their great men flourishing in their respective eras, and at a time when oratory and art admittedly flourished together, cannot be denied. Let us ask ourselves, therefore, after a careful consideration of the subject, what has elocution or oratory in its highest sense done for the study and culture of painting, sculpture, and architecture? The latter art cannot be separated from the two former, for in the greatest triumphs in the realms of Grecian and Roman architecture, not speaking of other Eastern nations, the sculptor's art was inseparable from that of the building art. Even now, sculpture in the abstract or isolated is but a weakling, although as an art creation a thing of beauty. It would not be going too far to say that painting and sculpture are the nurslings and offshoots of architecture.

Sculpture and painting need a home, a fixture, or a suitable architectural accompaniment or surrounding to give them proper effect. A statue in the desert is scarcely a public statue, but is a shorn object of art, out of place—out of place as much as a bridge or a number of arches standing in the middle of a field. An old ruin or hoary castle on a bleak cliff may be picturesque, but a solitary statue in the same place would be somewhat anomalous. It requires towns and cities, streets and buildings, and a somewhat highly civilised state of society, an educated people, or at least an intelligent people, to appreciate the arts, and it needs to be in their midst. How then—Do the cultivation and practice of oratory react on the arts, and their culture and progress? Do both, or did both, ever reciprocally act on each other? and, supposing they did, which of the two led the way to that comparative perfection in oratory and the practice of the arts once witnessed in Greece and Rome?

Anyone conversant with the history of Athens and Rome during the periods we have already indicated is aware that education was a prime consideration, and that in the most prosperous period of the history of these two great cities the system of education com-



prised the study of oratory and philosophy. These studies appear to have been combined for a time for the training up of youths to be wise and active citizens or members of society. At a later period philosophy of a certain kind became the chief study, and the contemplative more or less took the place of the active life, and innumerable became the disquisitions about trifles. The greatest care, it is evident, was taken in Greece and Rome in their best days to cultivate their languages. Greece may have borrowed her civil institutions and her knowledge in philosophy and the sciences from other founts, and Egypt and Phœnicia no doubt have been the springs or the principal contributing sources; but to her own efforts Greece owes her splendour in literary and artistic annals. The same may be written of Rome: both nations were great borrowers, but at the same time they were marvellous adapters and improvers.

The study of elocution and the practice of oratory, which were carried to their highest pitch in Athens and Rome, implies that the language of the people was pruned and purified. Refinement was given to them by the constant displays of great orators in the senate and forum; and under such influences, and by constantly hearing it spoken in a pure and perfect manner, the taste of the people was elevated. A single word mispronounced or expressed too short or too long in tone subjected the hearer to adverse criticism in Athens and in Rome. Cicero tells us the people were equally exact, and "that in the repetition of a verse the whole theatre was in an uproar if a single syllable was pronounced a little longer or shorter than it ought to be. Not that the crowd was at all acquainted with the quantity of the poetic feet, or had any notion of numbers, nor could they tell what it was which gave them offence, or why or in what respect it was a fault." If the common people had such nice discernment and such finely-attuned ears as to detect an irregularity in pronunciation or delivery, we may easily surmise what an ordeal the accomplished orator had to undergo or be prepared for, when he had amongst his audience orators and authors and artists as accomplished as himself.

The great tragic and epic writers no doubt benefited by witnessing great oratorical displays in Athens and Rome, and by studying the attitudes, forms, gestures, and the expressions in the orator's face, and consequently they were better enabled to pourtray in their works language suited to exalted passions and affections. The orator and the actor, therefore, by splendid elocution, could, and probably did to a great extent, react upon the tragic and epic writers, and the latter, in turn, upon the former.

But poets and musicians apart, how far did oratory exercise an influence upon artists and their works? The classic authors tell us of many great painters, but their works have been lost to the world through the perishable nature of the materials they perforce used.

The great historical painter needs for the purpose of his fame (other considerations aside) to depict human nature—animated, graceful, and expressive,—and the word "expressive" includes much. To use a modern term, he requires to paint upon his canvas or fresco a telling or "speaking" likeness, if the object be human. If his canvas include the brute creation and innumerable objects, he must also paint so as to "hold the mirror up to nature"; and if

she is falsified, there are critics who will hear and see it, and will not be slow to tell the world the faults of their erring brother. The painter would be but a poor observer of human nature if he did not obtain some points from witnessing the action and expression of a perfect orator or a great tragedian in one of his favourite parts—anger, hatred, remorse, fury, scorn, pity, joy, melting tenderness—in a word, the extremes of madness and gladness. To quote the words of an author already alluded to:—"From whom could Apelles borrow the tender and the graceful so well as from the man whose power of persuasion was irresistible? From whom the grand and terrible as from [quoting Milton]—

'Those ancient—whose resistless eloquence  
Wielded at will that fierce democratic  
Shook th' arsenal, and fulminated over Greece  
To Macedon and Artaxerxes' throne?'

How could Phidias have given such suitable forms to the creature of fancy? How could he so justly have framed the god of wit and eloquence as by a faithful transcript from a Pericles, whose lips the Graces were said to inhabit? Or how could he have made a statue of a Jupiter Tonans, as from a representation of the same Pericles, when at other times he was said to 'thunder and lighten in the assembly of the people?'

If oratory in its highest moods were suggestive of inspiration for embodied representation on canvas or other material to the great painters of antiquity, it certainly must have been alike suggestive to the sculptors, though perhaps less indirectly to the architects, if we wish to view the latter artists apart from the sculptors. As we indicated already, we do not think that the architect, as far as the monuments and temples of Athens and Rome and other ancient empires are concerned, can be treated apart from the sculptor; so the impressions likely to be made in listening to the finished orator would equally impress architect and sculptor. It is possible and probable that the architects of old, as well as some of their modern brethren, sketched figures from life—men, birds, beasts, and other objects, animate and inanimate, in connection with the temples they designed; and who can now tell how many of the sculptured heads and forms belonging to the shrines of the Greeks and Romans are not faithful transcripts in features of men who once moved and walked the world? Indeed we might write the same of the sculptured corbel heads, and other human faces, &c., that exist in abundance in connection with our great mediæval cathedrals and churches. A work in architecture even apart from human representation can be made truly expressive as well as impressive—expressive of a great and cultured mind, and impressive from all that it is made to embody of the principles of harmonic thought and art.

Leaving aside for the moment any effect or influence that the orator, or oratory, may have or can have on the artist, there is one thing which was certainly most conducive to the display of talents in Athens and Rome, not only on the part of orators, poets, and musicians, but directly in regard to painters, sculptors, and architects—the great and judicious encouragement that was given to display the highest talents. Rewards and honours were incentives to artists to persevere to win fame and distinguish themselves, and these honours being valued at their worth were earnestly and anxiously studied and worked for. The moral certainty of obtaining a fair reward or

high honour spurred Athenian and Roman artists and others to exert their talents and abilities. The certainty also that the rewards sought for and justly earned being distributed with skill, judgment, and strict impartiality was a great incentive to the competitors. The world, alas! of our times, and many good artists, great reformers, and benefactors of their species have not the moral certainty of obtaining always even from the State or other institution a scant recognition of their claims, not to speak of the honour and distinction that their lifelong labours may have justly entitled them to. The liberal arts, so-called in Greece and Rome, could not otherwise but flourish for a time from some of the reasons assigned, but we are not prepared to fix or state to what degree it was owing to oratory, though we think it might be accepted as an auxiliary in the development of the greatness of the literature and art of the famous cities to which they would owe so much.

The modern aspects and bearings of the question we have discussed would need a paper to itself, and it may be forthcoming as far as it is suggestive and can be usefully treated—not forgetting the displays in the Irish and British Senates, and the literature and art of their best periods.

#### PATENT NAIL FACTORY, FOUNDRY, &c., BALLYMACARRETT, BELFAST, FOR MESSRS. GREGG, SONS, AND PHENIX.

THE further extension of these works as originally intended have now been completed; and as they are so adjacent to the river, admirable facilities are obtained for carrying on the business in all its branches. But the site having formerly been slob land gradually filled in with cast stuff, much cost and care have been incurred in getting proper foundations, which are formed of piles, concrete, and strong timber framing. The concern covers an area 200 ft. long by 100 ft. broad, exclusive of other buildings in connection with same. At further end of site the boiler and engine houses are erected, the former being arranged to suit two boilers; and as the ends of these buildings face the river, the coal and iron are discharged at once into the stores from barges. The chimney-shaft, which is a neat and conspicuous feature, rises at corner of boiler-house to the height of 100 ft., the flue being same diameter from bottom to top. Next to engine-house is the factory and machine shop, 82 ft. by 30 ft.; nail store, 50 ft. by 30 ft.; and, at side of same, the foundry, 102 ft. by 50 ft., is placed, besides sheet and scrap iron stores, manager's and private offices, furnaces, pattern-shop, steam hammer, &c. The site next river is enclosed by a massive wall formed of large squared blocks of Scrabo stone set in hydraulic mortar, resting on a bed of concrete 6 ft. broad under water-line, and the top is coped with large dressed blocks of stone dowelled in joints. The side walls of foundry are 20 ft. high, and of factory, 15 ft. high, and much light is obtained from side windows as well as from ranges of glass along sides of roofs. As the factory is very warm when nail-cutting machines and furnaces are at work, much attention has been given to ventilation, as the upper part of all the sashes open on pivots, besides large louvres are fixed on roofs for same purpose. The walls are built of best perforated red brick, the arches and bands being blue brick from Staffordshire; and, as viewed from the river, the buildings have a neat, light, and substantial appearance, and are the first which have been built in Ireland for this particular business, at large expense to the proprietors. The whole of the various works have been executed by Messrs. Dixon and Co., contractors, in a very satisfactory manner,



according to the plans and specifications and under the superintendence of the architect, Mr. William Batt, jun., of Donegall-place, Belfast.

### PUBLIC BUILDINGS, MELBOURNE.

MELBOURNE is a city which, although only of a few years' growth, would do no discredit, whether for the width of its streets, the number and elegance of its public buildings, the business transacted in it, the magnificence of its shops, the beauty of the numerous parks and gardens by which it is environed, or the thousand comforts and conveniences afforded to its residents, to any country on the face of the earth. The city proper is built on two hills and an intervening valley, the streets running at right angles, each main street being 99 ft. wide, and each minor street half that width. The most noteworthy edifices are, the Treasury, Houses of Parliament, Public Offices, Public Library, Post Office, Custom House, the University, Town Hall, &c.

With former issues of this journal we gave views of the Houses of Parliament and of the Exhibition Building. With this number we publish views of buildings erected or in course of erection, copied by the photo-lithographic process from the Paris number of the *Illustrated Australasian*.

*Government House* (sketch 1), the residence of his Excellency the Governor, stands in a domain abutting upon the Botanical Gardens. It was commenced in 1872. The foundations are of bluestone, laid in massive blocks; the base course is finely-wrought Malmsbury bluestone; the bricks for walls are Hoffman's patent.

*The New Law Courts* (2) occupy a site having a frontage of 313 ft. to William, Lonsdale, and Little Bourke-streets respectively. The style is modern Italian.

*The Public Library, Museum, &c.* (3) occupies a central position in the city. The main front is in Swanston-street. The library and reading-rooms are on the first floor, and the shelves contain about 100,000 volumes, which are open to be freely read by all persons, and the privilege is taken advantage of by hundreds daily. There is a system of lending selections of books to country free libraries in operation, which is found to work well. *The National Gallery*, which is attached to the library, contained, at the end of 1875, nearly six thousand works of art, which have since then been largely added to. *The Industrial and Technological Museum* (also attached to the library) contains about eighteen thousand objects, principally specimens of art, industry, and natural products.

*The Town Hall* (4) stands at the corner of Swanston and Collins streets, with frontage of 180 ft. to the former, and 149 ft. to the latter. It is constructed of massive bluestone for basement, and Tasmanian freestone for superstructure.

### ARCHÆOLOGICAL JOTTINGS.

THE British Archæological Association will hold their annual congress this year in Yarmouth, having accepted the invitation of the Mayor and Corporation of that town. The meeting will take place in August; the Town Council has appointed a committee to make arrangements.

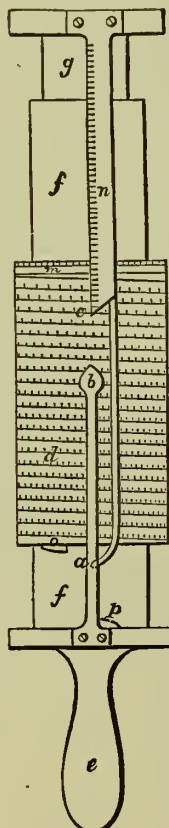
The Royal Archæological Institute will hold their annual congress in Taunton in August. At a late meeting of the Town

Council of that town the General Purposes Committee was appointed to co-operate with the Somerset Archæological Association and other bodies in making the arrangements for the reception of the members of the Institute.

Mr. Rowland Ward writes an interesting discovery at Charing-cross, London, which will possess some interest for Irish readers:—"In making the excavations at Charing-cross for Messrs. Drummond's new bank, the workmen, at depths varying from 15 to 30 ft., came upon the fossil remains of various extinct animals. They include elephant tusks and molars (probably the mammoth *Elephas primigenius*), teeth and numerous bones of the gigantic extinct ox (*Bos primigenius*), a portion of what appears to be the horn of the great extinct Irish deer (*Megaceros Hibernicus*), along with various other remains of ruminating animals not yet identified. All the remains are those of herbivorous quadrupeds, but there is among them no bone or tooth of hippopotamus or rhinoceros, though these huge beasts are known, from discoveries made at Brentford, Crayford, and other localities in the Thames valley, to have been in times long gone by the companions of the Thames valley mammoths. The specimen in this collection which has specially attracted the notice of gentlemen learned in the study of fossil osteology is the terminal portion of an elephant tusk, unusually sharp at the point and highly polished, and from the surface of which a very thin skin of ivory peels off, exposing a strongly and regularly longitudinally channelled surface beneath."

### A NEW SPIRAL SLIDE RULE.

A NEW form of slide rule for arithmetical calculations has been invented by Mr. George Fuller, C.E., Professor of Engineering in the Queen's University, Ireland. The rule consists of a cylinder (d) that can be moved up and down upon, and turned round, an axis (f), which is held by a handle (e). Upon this cylinder is wound in a spiral a single logarithmic scale. Fixed to the handle is an index (b). Two other indices (c) and (a), whose distance apart is the axial length of the complete spiral, are fixed to the cylinder (g). This cylinder slides in (f) like a telescope tube, and thus enables the operator to place these indices in any required position relative to (d). Two stops (o) and (p) are so fixed that when they are brought in contact, the index (b) points to the commencement of the scale. (n) and (m) are two scales, the one on the piece carrying the movable indices, the other on the cylinder (d).



Scale, 3 inches to a foot.

It will at once be seen that by this arrangement the length of the logarithmic scale can be made very great, whilst keeping the instrument of a convenient size for use. It requires only one logarithmic scale, so that every inch of the spiral scale is equivalent to two of the ordinary straight rule. It may be remarked that the slide rule possesses an advantage over a table of logarithms, in addition to that of performing mechanically the requisite additions and subtractions, in that the approximation is uniform throughout the scale, and not nearer in one part than in another, as in the tables. It must be remembered that all the calculations founded on measurements of length, weight, and time

can only be approximative, as the data for them are so. Except, therefore, with the most refined measurements, it is a waste of time to carry results beyond the ten thousandth part of the whole.

We quite coincide in the opinion expressed by our contemporary the *Builder*, that this rule is destined to improve and extend greatly the capabilities of that instrument, and to render it extremely efficient for the calculations required by the architect, both as regards facility and exactitude. The reading scale is by means of indices, and not by a second scale, as in the ordinary form. By means of a scale marked in the movable index, and one in the cylinder above the logarithmic scale, any power or root of a number is easily obtained, so that the various characters of arithmetic can be performed by means of the rule. Printed on the fixed cylinder of the rule are tables deemed most useful. One set of tables gives the equivalent decimal fraction to our various fractional English weights and measures. In the taking out of quantities in both weight and measure these will be of great assistance.

The rule is manufactured by Mr. Stanley, of Great Turnstile, Holborn, London, who has already and for some years past introduced great improvements in mathematical and drawing instrument-making, and who is also the author of an excellent treatise on mathematical instruments in general, and particularly those used by architects, engineers, and artists.

### NOTES OF WORKS.

The parish church, Portstewart, is being remodelled according to plans by Mr. Thomas Drew, R.H.A., diocesan architect. Mr. John Graham, Portrush, is the contractor.

At the North Dublin Union Workhouse an hospital wing is being erected in addition to present hospital. The building presents a frontage of 210 ft. by 24 ft. in depth. The material is rubble limestone, with granite quoins. Mr. Geo. Wilkinson is the architect, and the work is being carried out by Mr. Robert Worthington, 40 Dame-street. The cost will be about £5,000.

The parish church of Kilbride, County Wicklow, was reopened on Easter Sunday, after having received additions and being entirely renovated. On the site of the old vestry a new square chancel has been erected, in which is placed an east window of neat design. The chancel floor is laid with encaustic tiles, and the steps are of Portland stone. Amongst other improvements we may notice the new roof, which is lined with timber stained and varnished, and the substitution of neat open benches for the old square pews. The work has been creditably executed by Mr. Henry Sharpe, of Kells. The cost is about £800, the greater part of which has been contributed by the Earl of Wicklow.

Extensive additions are being made to the Queen's College, Cork. The first contract comprised a new Museum and extension of Medical School wing, and has been carried out by Mr. P. Kenna, builder, Limerick. The second contract consists of a new gate on Western-road, with bridge across River Lee, from which a new road is carried to front of College, with a gradual sweep and incline. This will be a great advantage, instead of present unsightly and inconvenient entrance. There are also extensive plant houses erecting on new ground lately purchased, and an observatory, the telescope for which has been made by Mr. Grubb, of Rathmines, Dublin, and obtained a prize at the Paris Exhibition. This contract is being carried out by Mr. E. Fitzgerald, of Cork, the whole being from the designs and under superintendence of the architect of the Board of Public Works. The total cost is about £10,000. Quantities were supplied by Mr. Bermingham, surveyor, Dublin.



### DIOPTRIC APPARATUS IN LIGHTHOUSES FOR THE ELECTRIC LIGHT.\*

THE author briefly premised that in the Fresnel or dioptric system, the source of light occupied the central position within a structure of glass zones, or annular segments, by which the incident rays were condensed and directed on the sea; and that there were two principal kinds of dioptric apparatus, the fixed and the revolving. He then proceeded to make some observations concerning the different optical treatment which a small radiant like the electric arc required from that which suited an ordinary flame. In the latter case, as, for it concerned sea-lights, the object was not only to parallelize all the rays emanating from any point of the luminary, but also to reduce the vertical divergence due to the height of the flame by increasing the diameter of the optical instrument. On the other hand, the smallness of the electric arc afforded the opportunity of obtaining from the dioptric zones or other elements, by suitable generating sections, whatever divergence, whether horizontal or vertical, might be desired. It was also pointed out that the source of light, in the case of the electric arc, could not be entirely depended upon for maintaining the same position in relation to the focal horizontal plane; and that consequently, since the vertical divergence due to the luminary would move upwards or downwards with any vertical displacement of the radiant itself, the mariner could not be absolutely secured from failing to see the light, unless a special vertical divergence were given by the dioptric apparatus, independently of that caused by the size of the electric arc. This, however, involved the adoption for this illuminant of a dioptric instrument considerably larger than what was originally contemplated, so as to reduce materially the luminary divergence, and thereby be free to substitute for it, to some extent, a special vertical divergence.

The author stated that in 1862 he had expressed himself in favour of a much larger apparatus than was then employed with the electric light at Dungeness. Also that in 1865, Messrs. D. and T. Stevenson had recommended a third order apparatus for the purpose, in their report to the Commissioners of Northern Lighthouses. A similar result was arrived at by the Elder Brethren of the Trinity House, in 1869, in consequence of comparative trials instituted by Professor Tyndall, for testing the relative merits of a sixth order light, and a third order one respectively, when used with the electric radiant.

The Souter Point revolving light, which was first exhibited in January, 1871, was described. Reasons were assigned for adopting two optical agents—one to condense the light in the vertical plane, the other to produce the required horizontal compression—instead of attempting, even for the refracting part of the apparatus, to effect the two condensations respectively by a single agent. Reference was made to the proposal of Mr. Thomas Stevenson for attaining this latter desideratum; as likewise to that of Mr. Brebner, with a similar object. The method actually adopted was similar to that which had been already employed in France for the revolving light with the electric arc. It consisted of a fixed third order light encircling 180°, and of a rotating octagonal drum of the same height surrounding it. Each side of this drum, comprising three panels in height, was composed of vertical refracting prisms, by which the light, radiating in azimuth from the inner fixed apparatus, was compressed horizontally into a beam of 7° 8' divergence in addition to that due to the electric arc. This was done in such a manner that every single prism had its own independent divergence of the same amplitude, whereby was obtained an extent of light-emitting surface of a height of 6½ ft. and of

22½ in. in breadth. Stress was laid upon its being the characteristic feature of the beam issuing from any one of the sides of this glass drum that, in passing before the eye of the observer at sea, its brilliancy would, from first to last, remain unchanged, as distinguished from the waxing and waning appearance of the ordinary revolving light; consequently, at whatever distance the flash might be visible, the interval of its duration would be the same. Attention was also directed to the valuable suggestion made by Mr. J. N. Douglass, engineer to the Trinity House, that advantage should be taken of the landward hemisphere of the radiant light of the electric arc, to provide a beam which should be made to issue through a window in the tower below the main light, in order to mark certain dangers in Sunderland Bay; and it was stated that 54·6 per cent. of the rearward hemisphere of light had been thus utilised.

The two fixed lights which were inaugurated at the South Foreland, in January, 1872, were described. It was explained how the whole of the catadioptric zones—both upper and lower—were in both lights made to parallelize the rays in the usual manner. The light, however, incident on the refracting portion of each light was distributed over the sea from the horizon to within a short distance from each tower, by a succession of increasing angles of vertical divergence, so that the illumination of the sea became gradually diminished as the distance from land was lessened. In each light there was a rearward arc to spare, and this was turned to valuable account, from 67 to 71 per cent. of this light being collected and acted upon by optical agents, which were particularly described, and thereby distributed uniformly over the front azimuthal arc, so as to intensify not only the illumination of the horizon and the distant sea, but also that of the nearer sea.

It was mentioned that the two Lizard lights, which were both fixed, and were first exhibited in March, 1878, had optical arrangements similar in every respect to those adopted at the South Foreland lighthouses, with a slight variation in the refracting portions, arising from the circumstance that existing apparatus had to be turned to account in the construction of each apparatus.

A table was appended, showing the condensing powers in the direction of the horizon of the lights described, distinguishing those optical portions which parallelized the incident light from those which gave to it special vertical divergence. According to this table, upon the assumption that the diameter of the electric arc was 12 millimètres, the condensing powers in the sea-horizon direction were as follow:—

Souter Point—Revolving	-	236·38
South Foreland—High Fixed	-	50·17
South Foreland—Low Fixed	-	43·40
Two Lizard Lights—Fixed	-	58·44

and data were added for adapting this table to particular cases.

In a second table was given the respective condensing powers over the near sea, at different distances from the lighthouse towers.

### ADVERSARIA HIBERNICA,

#### LITERARY AND TECHNICAL.

THE forthcoming centenary of Moore suggests a variety of historic memories of our bards and annalists, of our harps and harpers, and other associations connected with the music and musical instruments of Ireland in the past. Giraldus Cambrensis, in his topography of this country, written in the twelfth century, makes some allusions to the then current instrumental music, which are worth referring to. Towards the close of the last century, Joseph Cooper Walker, the antiquary, in his "Memoirs of the Irish Bards," dealt with the subject at considerable length, and his volume may usefully be referred to at present, although he errs in some of his conclusions. Thomas Moore himself, in his

"Prefatory Letter on Music," accompanying his Melodies, has expressed some opinions entitled to consideration.

In Moore's time, and even since Moore's death, the subject of Irish music and musical instruments has been the theme of more than one writer. Sir Robert Stewart, of this city, in his lectures has more than once kindly and appreciatingly touched upon the subject of Irish music; and individually, in a concert with other assistants, gave the Dublin public some excellent renderings of our ancient music, and some racy memories of its chief representatives. The subject extends far back into our history, and it is therefore a very wide one, and not one that can be treated in a passing note or two. Our purpose is merely to awaken an interest at an opportune moment, and prompt, if we can succeed in doing so, other minds and pens to contribute a little to the genial enjoyment on a suitable occasion.

The harp that is deposited in Trinity College Museum, and known as Brian Boroihme's instrument, has often been described, and it no doubt will be examined by many visitors to our city shortly. The last possessor of Brian Boroihme's harp was the Right Hon. William Conyngham, by whom it was deposited in Trinity College in 1782. It is a very old instrument, and though much decayed in part it bears evidence of high craftsman skill. Prefacing some verses on "O'Connell's Harp," written by J. UU., i.e., the Rev. James Wills, which appeared in a Dublin popular periodical published in this city in 1832, are some interesting memories of an old Irish harper of the last century, who lived on till the opening of the present century, when he died upwards of ninety years of age. The Rev. James Wills, who was a poet himself of no small merit, and the author of the "Lives of Illustrious Irishmen," could, and did write lovingly of the poet, and several of his poems evidence his national feelings and sympathies. For instance, his "Minstrel's Walk," among others, is a very sympathetic and pleasing poem. In the prefatory notes to "O'Connell's Harp," Mr. Wills writes:—"The old Irish harp has now, perhaps, no existence, except in the repositories of the curious. It has passed away among many other interesting relics of earlier times, which had yet a lingering existence at the close of the last century. Any one who can look back distinctly for about thirty years, may chance to have some recollection of the travelling harper; at that time, of course, in the wane of life and social consideration. Prior to this, and in a much simpler state of society, he was an honoured guest, whose appearance never failed to produce much animated excitement wherever he came, laden with the music, the provincial intelligence and the family gossip, amassed during half a year or more of tuneful peregrination."

In continuation of the above Mr. Wills gives us the following interesting picture of one whose form and features were impressed in his memory, one of the last characteristic representatives of the old race of travelling harpers to be seen in the west of Ireland at the commencement of the present century:—"The writer can vividly, though, perhaps, not with very great accuracy, recall the personal appearance of a very old man named Frene or Freney, who was, something more than thirty years since, a welcome visitor in every respectable family, through many of the western counties. Frene could not then have been less than ninety years old. He was about the middle size, but much bent by age; with a head of the Homeric cast, and venerably crowned with the whitest hair. His harp, as the writer—then a child—can recollect its appearance, was a dark-framed antique looking instrument, closely strung with thin brass wires, which produced that wild, low ringing music, which in the following stanza is attempted to be expressed by the words 'fairy chime.' The effect of this was heightened by the old man's peculiar expression of intense, and sometimes pleased attention to

\* By Mr. James T. Chance, Assoc. Inst. C.E. Read at meeting of Institution of Civil Engineers, London, on the 22nd ult.



his own music, as he stooped forward, holding his head close to the wires, while he swept them over, with a feeble, uncertain and trembling hand,—the too obvious effect of extreme age. His appearance thus bowed beside the instrument, which (though as the writer is informed, it was a small harp) towered far above his white head—was of a picturesque character, and might well have served to illustrate the description of his more poetic brother in the 'Lay' [of the Last Minstrel.] But poor old Frene had no rallying of tune-ful power—his harp strings seemed to have caught the wandering, querulous, and feeble dotage of his infirm age, and echoed mournfully of departed power and life. And it now adds much to the interest of this recollection that he could not have been the welcome guest, which at this time he was, for the sake of his music. He was a venerable ruin of those good old times, which their then survivors felt to be passing away with the harper. Old Frene had lived among their grandfathers, and had filled no mean place in the gay doings of those less refined, but more joyous and hospitable times. He was full of old stories about persons whose names and deeds had still an interest in the memory of their descendants; and these stories were heard with a delight which can now be little understood. They excited that sympathy which is the effect of similar habits and feelings; and the world has long ceased to look with congenial interest on the half barbaric heroism and hospitality of that masculine generation, of which there now remains scarcely a distinct recollection."

The annexed verses already alluded to refer to a harper of an earlier generation. Thomas Connellan, of whom some brief notes will be found in Hardiman's "Irish Minstrelsy," was a native of Sligo, where he was born early in the seventeenth century. He died in Lough Gur, County Limerick some time previous to 1700. A few of Connellan's airs still survive, and are deservedly appreciated. They have often been availed of by more modern composers, and word dressings in English, Scotch, and foreign phraseologies fitted to them:—

Harp so loved in days of old,  
Unhonoured now—  
The hand that swept thy strings is cold,  
And tuneless thou!  
Tho' oft when other sounds are still  
In evening grey,  
The peasant carols on the hill  
Thy plaintive lay;  
But never more those chords of thine  
Shall vibrate there—  
No more, with silvery splendour, shine  
Thro' evening air;  
Nor maiden watch the minstrel pace  
His honoured path,—  
Who looks for him—alas! must trace  
The tomb-crowned rath!

By Lough Gur's waters, lone and low,  
The minstrel's laid—  
Where mouldering cloisters dimly throw  
Sepulchral shade;  
Where clustering ivy darkly weeps  
Upon his bed,  
To blot the legend where he sleeps—  
The tuneful Dead!  
And fall'n are the towers of time  
In dust, and lone,  
Where the ringing of his fairy chime  
So well was known!  
Where song was sweet and mirth was high,  
And beauty smiled—  
Thro' roofless halls the night winds sigh,  
The owl shrieks wild!

The towers are fall'n—and where are they  
Who met of yore,  
To listen to the minstrel's lay  
Or knightly lore!  
The castle lifts its broken pile  
In silent air—  
And answers with a gloomy smile  
That such things were!  
Still cherished lives to distant years,  
The minstrel's name—  
An honor'd relic still appears,  
The Clairseach's frame,  
Tho' in the shroud of ruin it lie,  
By time unstrung—  
Its soul of music, may not die—  
The strains it sung.

*Apropos* to the foregoing the following remarks from a paper on the "Antiquity of Irish Music," written forty-six years since in a Dublin magazine by a gentleman who was a native of this country, but then residing in London, will be found of interest. He is of opinion that the antiquity of Ireland's

music was much underrated by Moore in his Prefatory Letter to the "Melodies." He goes on to say: "But in truth I am persuaded Mr. Moore can scarcely now retain the opinion on that subject which unluckily, and perhaps inadvertently, found a place in his 'prefatory letter' to the Melodies. The late Dr. Spray, though an Englishman, was a decided maintainer of the antiquity of Irish music; and he frequently told me of having communicated his sentiments to Mr. Moore, and especially with reference to one air, he offered to show him by internal evidence to be found in the composition or notations of the air itself, that it was at least upwards of twelve hundred years old. These facts, also, as to other extremely ancient airs lately brought forward in your journal, he, by this time at least [1833] if not heretofore, must have got some traces of. Surely the esteemed poet cannot but have read Cambrensis, who was sent over to Ireland by Henry the Second, with his son, Prince John, in 1185. So numerous are Cambrensis' misrepresentations and libels on the Irish character that it detracts from the high name of Randolph de Glanvilla, the venerable compiler of British Common Law, then principal adviser of his sovereign, to have permitted such a man to accompany the prince; still, this very Cambrensis on his arrival in Ireland six hundred and forty-eight years ago [now 694 years] was so astonished, yet so charmed, with the Irish music, that in this instance his malignity ceased, and a large space in his work is devoted to an attempt to describe the accomplishments of Irish minstrels, and the irresistible effect of their fascinating science. This was six hundred and forty-eight years ago! and yet Mr. Moore assigned some two hundred and fifty years as the age of our 'civilized music.' I remember, as a boy, seeing the harp of Brian Boroihme, which exists in Dublin, and the fact that such a thing was made and used in Ireland more than eight hundred years ago, and nearly two hundred years before English connection commenced, was one of the first facts that made me suspect there was much suppression of truth in the theory that assigns a modern date to our music. Standing before that venerable relic of Ireland's former civilization and refinement, Mr. Moore must have felt that there had been once an era, and an early one, when scientific men and 'civilized airs,' such as that harp was strung for, were known and encouraged in Ireland." The writer of the above refers to a number of statutes preserved in Lambeth Palace Library, London, where he perused certain laws passed in Ireland in 1366, whereby the "Irish Minstrels" are specially excluded from those districts which belonged to the English government [the English pale], under pain of imprisonment and forfeiture of the instruments of their minstrelsy—"les instrumens de leur ministratie." These statutes hitherto, the writer whom we have quoted says, have not been given by the latest writers on Irish music. In these statutes there are no less than six classes of minstrels mentioned by name; a classification which he is perfectly correct in observing "bespeaks great proficiency and variety in Irish minstrelsy so far back as four hundred and sixty-seven years since" [now 513 years]. The reason stated for expelling them was their discovering the secrets and privities of the government districts; "a fact," continued the writer, "which inferentially establishes their accomplishments to be of the higher order, when they could procure them ingress and influence even amongst an hostile people."

In our next "Adversaria" we will furnish a few more notes bearing upon the above subject, and also in relation to opinions expressed by Thomas Moore in relation to the antiquity of Irish music and the dates of certain national airs. H.

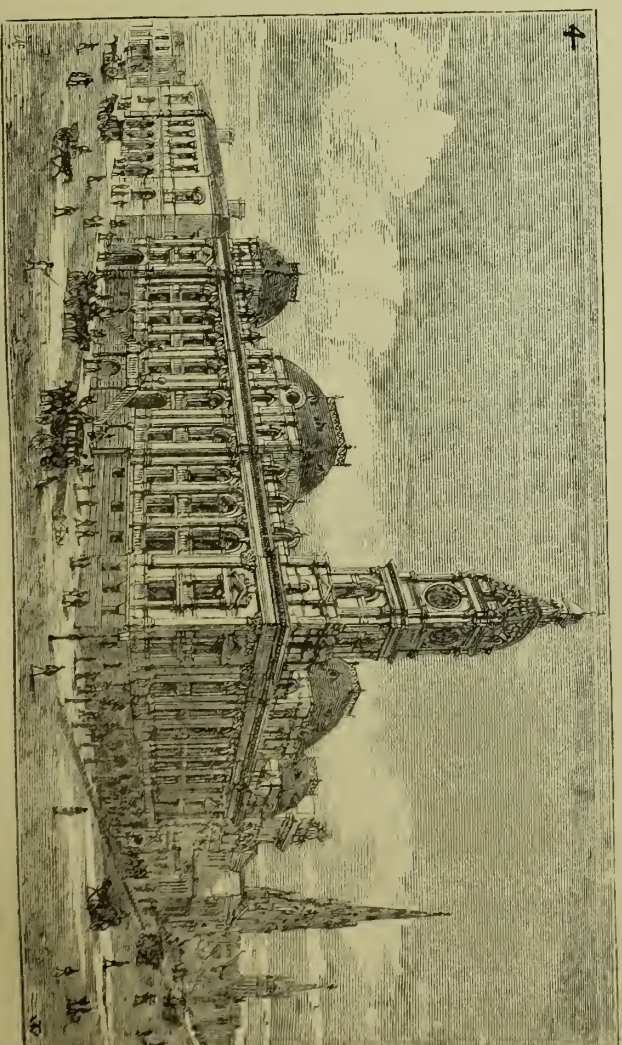
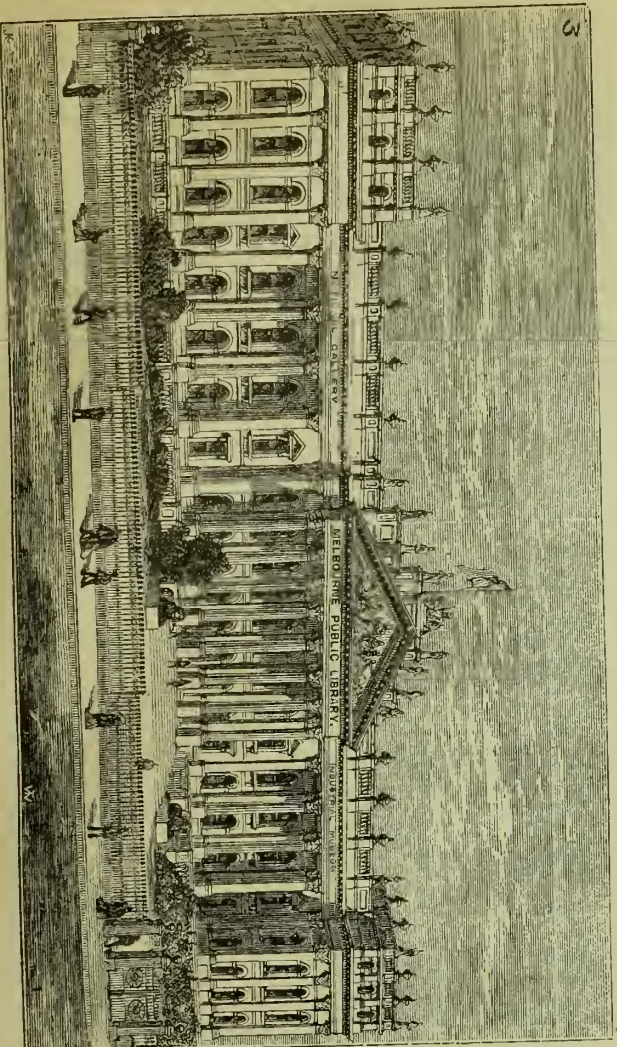
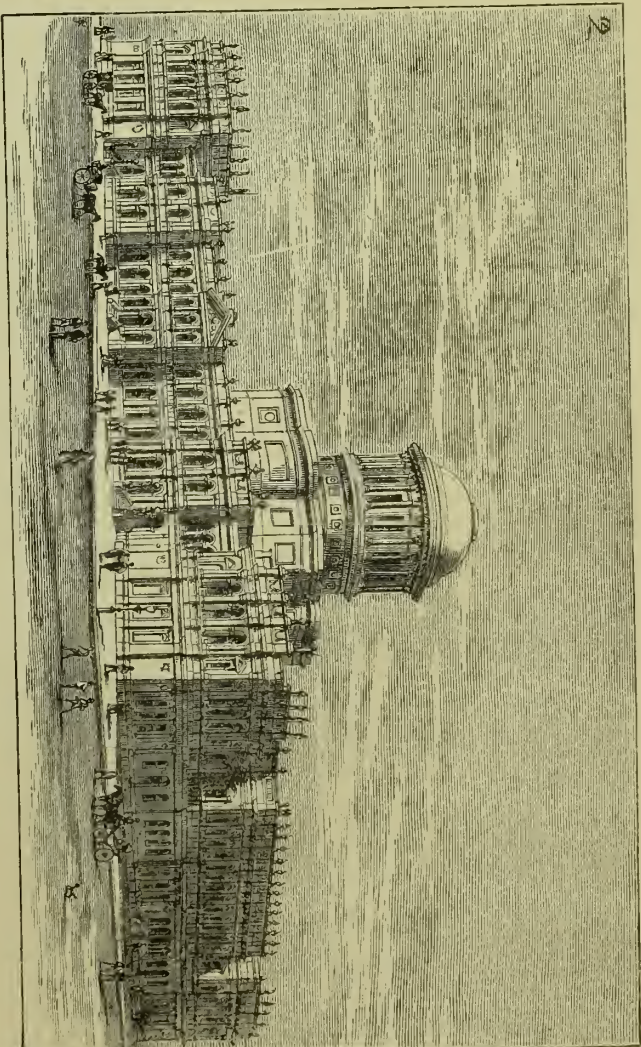
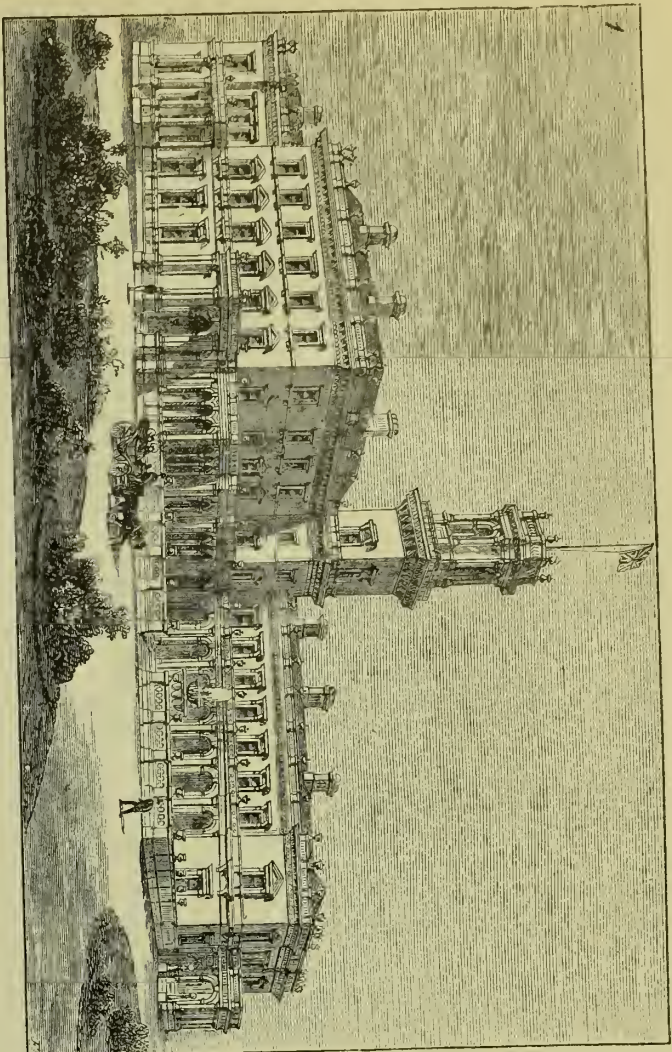
A line of steamships will shortly commence to run between Belfast and New York direct. It will be in connection with the New York Central and Hudson River Railway.

## THE ART OF THE ITALIAN RENAISSANCE.\*

In the first lecture he dealt with the art of Cimabue. They had to-day to study the works of a man of far more importance than Cimabue—namely, Giotto. The ordinance which Cimabue initiated was perfected by him. The beautiful region of which the great master had a remote Pisgah vision was not only entered but conquered by this much greater pupil, who not merely suggested the course which the new art of painting should take, but re-created this art. Giotto not merely taught men to go to Nature for instruction, but how to utilise the lessons taught by her: not merely how to imitate, but how to idealize. His art had something of the simple directness of his friend Dante's poetry. Giotto's art, however, is innocent, happy, healthy. It has none of the mediæval gloom, the morbid rage of habitual hatred, the white heat of mystical passion which we find in Dante's *Divina Commedia*. It is, if not more human, at least less inhuman; if not so intense and sublime, more graceful. In the one or two instances in which, under Dante's inspiration, he painted a "Day of Judgment" and "Inferno," he was evidently out of his element, and defiled the wall with ugly representations of torments which, divorced from Dante's ethical verse, were merely barren horrors. The lives of the two friends were, indeed, as different as their imaginations—Dante, a citizen of Florence, a homeless exile when outside her gates, nurtured on the very bitterest milk of party politics, himself a man of mark among the Ghibellines, and a savage combatant in deed as in word; Giotto, a child of the country, a good-humoured citizen of the world, a hard-working craftsman, ready to do a good day's work for his employer, were he prince or churchman, Guelph or Ghibelline, loved and honoured by all Italy; Dante full of the prophetic fury of the reformer, the scourge of sinners, whether laymen or clerics; Giotto with something of the easy-going Bohemianism of the artist, smiling with good-humoured Chaucerian satire at the shortcomings of his patrons, but accepting the Church as the Church, and its ministers as its ministers, with frank, light-hearted reverence; Dante steeping all the real world in the vivid lights and shadows of mediæval mysticism; Giotto harmonising the Christian history and legends by bringing them into the pure sunshine of every-day life. Giotto was born in a hamlet about fourteen miles from Florence, in the year 1276. His father was a plain husbandman. The legend is that he was out minding his father's sheep when it so happened that Amabue, passing that way, found him hard at work trying to draw one of his sheep on a flat rock with a piece of sharp stone. Seeing some evidence of genius in his rude sketch, the great painter on the spot secured a pupil who soon far surpassed his master. The frescoes on the walls of the upper church of St. Francis at Assisi contain the record of Giotto's marvellous apprenticeship of eight years. The frescoes in the lower church, which are supposed to have been painted on his second visit to Assisi when little more than twenty years old, show his full power as a fresco painter. The subjects of the allegories with which the walls of the lower church are covered are, Obedience, Poverty, and Chastity, the apotheosis or glory of St. Francis filling up a fourth compartment of the ceiling. The lecturer gave an interesting description in detail of those compositions, in which we have the main elements of Giotto's greatness already in full process of development. If ever there was a mind of which the characteristic qualities were sweetness and light, that mind was Giotto's. He is the true morning star of Italian Art; the peaceful solemnity of such a dawn as that in which the Gospel angels spoke peace and good-will to the shepherds seems to breathe from every inch of his pure and lovely work.

\* By Dr. John Todhunter. Being the second of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.







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In genial humanity, not without its shrewd touches of humour, and full of dramatic power, he reminds us of Chaucer, who had himself absorbed the southern sunshine of the French and Italian poets, and who had his moments of that great solemnity which pervades Giotto's style like an atmosphere; but even Chaucer himself seems a little coarse, unbalanced, and wing-clogged, beside the perfect harmony of Giotto. Having praised Giotto's power of story-telling and clear and simple mode of graphic composition, so grand without sternness or *hauteur*, contrasting him with Raphael, the lecturer said in Giotto there was no sophistication. His religion was one of faith in things to be lived by—not a pretty mythos to serve pagan princes as a subject to eke out the artistic upholstery of their palaces. Possibly he did not feel much drawn to the rule of St. Francis, as his own shrewd lines on poverty would seem to show. Possibly, also, he found, as Chaucer did, that most men, whether lay or clerical, fall far short of their own ideas, but in him the spirit of humanity was in no violent discordance with that of religion. Reference was next made to his greatest works—his design for the celebrated mosaic of the Novicella, now in the porch of St. Peter's; the series of frescoes in the Arena Chapel at Padua, and the splendid frescoes in Santa Crux, at Florence. He gave a particular account of those in the Arena Chapel, illustrating his observations by a magnificent series of photographs. Mr. Ruskin describes the series as “a continuous meditative poem on the mysteries of the Incarnation, the acts of Redemption, the vices and virtues of mankind, as proceeding from their scorn or acceptance of that Redemption, and their final judgment.” He confessed that Giotto's designs were sometimes bald and crude, his figures usually a little clumsy in proportion and stiff in action, and his buildings out of perspective. What is to be looked for in his works is what artists call intention and feeling. In him we have the fresh naturalism without the paganism of the Renaissance; and if painting had developed simply in the direction indicated by Giotto, the balance between spirituality and sensuous beauty might have been maintained. Even a Puritan might find edification in these early representations of the Christian story. It seemed to the lecturer that there was more of the spirit of pure, practical Christianity, as opposed to ecclesiastical asceticism, on the one hand, to sensuous paganism on the other, in the art of Giotto than in that of any other man, until we come to Bach and Handel. The school of Giotto, which included all the Florentine painters of the fourteenth century, carried on the Giottesque traditions as regards subject, method, and composition, and even form and colour, without Giotto's genius, though with a slight advance in technical skill. Having given notices of Taddeo Gaddi, Francesco da Volterra, Oregna, and others of this school, the lecturer contrasted with their style the influence of the independent art of the Siennese school, derived from Guido and Duccio. The art of Giotto, thus modified and recreated, produced in the fifteenth century two such opposite types as the exquisite ecclesiastical idealist Fra Angelico, and the rude and powerful secular realist Masaccio. The art of Fra Angelico is essentially the art of the cloister, the tender flower of a spiritualist, kept from the storms of the troublous world. The life of this gentle friar was a dream of heaven, or rather heaven was the reality of his life, and this world a strange dream tranquilly endured because he knew it to be a dream. Vasari, after relating with astonishment how he refused the archbishopric of Florence when it was offered him by the Pope, adds:—“But of a truth so extraordinary and sublime a gift as that possessed by Fra Giovanni should scarcely be conferred on any but a man of most holy life, since it is certain that all who take upon them to meddle with sacred and ecclesiastical subjects should be men of holy and spiritual minds, for we have seen that when such works are attempted by men of little faith,

and who do but lightly esteem religion, they frequently cause light thoughts and unworthy inclinations to awaken in the beholder.” Fra Angelico was a man of the utmost simplicity of intention, and was most holy in every act of his life. His beautiful and saintlike character is apparent in everything that he has painted. He walks among painters with an aureole round his head and a song of praise in his mouth, his art as angelical as his name. The dove of divine peace seems to brood over him continually, and in all the multitude of his works there is not a touch of anything unclean. The tender grace of his drawing seems to warrant his own belief in its inspiration, and his colour so unapproachably bright and pure, shines with the serene radiance of Paradise. His angels are gentle ministers of divine love and grace, and in the faces of his saints the rest of perfect faith abides for ever. [Photographs of two beautiful specimens of his art—the “Deposition,” in the Florence Academy, and the “Resurrection,” in the Convent of San Marco—were exhibited.] In Fra Angelico the school of Giotto may be said to end. The lecturer now glanced at the contemporary school of Sienna, for which Duccio did something, at least, of what Giotto did for that of Florence. The Florentine school progressed from the simplicity of Giotto to the symmetrical complexity of Benozzo, and the Siennese from the ill-balanced complexity of the Lorenzetti to the noble simplicity of the Taddeo di Bartolo. With them we take leave of that simple and severe religious art, which, whatever its defects of ecclesiastical narrowness, had in it no taint of paganism. Giotto was not ashamed of his work; though all the saints in heaven might have their eyes upon him, he would have been as much at home with a sociable archangel as he was with all other creatures. In the Siennese school there was none of that gloom and savagery of the Middle Ages, the horrors of death and judgment, the sanctity of the author of the Inquisition, and of sacerdotal education. In Fra Angelico art became a thing of the cloister, not of the open world—a thing remote, dreamy, celestial. If the painter's belief in the reality of angels is to be judged of, as Ruskin seems to think, by the way in which he paints their wings, Blessed Angelico's belief was small. His angels stand or float with wings of rainbow beauty, but of merely ornamental value. But Mr. Ruskin's test is here manifestly at fault. Fra Angelico's art, if not very robust, and somewhat fanciful, is the art of a man deeply and sincerely religious.

#### SANITARY ASSERTIONS AND SUGGESTIONS RE DUBLIN.

In our issue of 1st ult. we briefly noticed a pamphlet published under the title of “New Dublin, or Health in Highways, Byeways, and Homes,” by a Mr. Houghton, of this city. We said it contained nothing very new, although certain evils were forcibly described. Though we are still of the same opinion, we are now desirous of ignoring the publication of truths, as we hold that the more often evils are exposed the sooner will reform be carried out. In this light “New Dublin” may effect some good; and as the pamphlet otherwise imparts the embodied good advice of other reformers in respect to sanitary wants, regulations, and appliances, it is entitled to notice and commendation, as far as the views put forth are sound. Perhaps it will be better on our part not to enter into any detailed criticism or analysis of the pamphlet as we were inclined at first, but to give some extracts therefrom, dealing with matters which have already provoked a large amount of adverse criticism. The following picture of the houses of the old part of our city is not an unjust one, nor can we say the author has exaggerated when he touches upon the municipal administration and its surroundings:—

“Dublin, if not the first city in the empire, is undoubtedly the premier town on the death roll, a

noloury by no means desirable for its inhabitants or a source of pride to them. Now, as there is a reason for everything under the sun, the cause of this sad mortality it is our bounden duty to discover. Dublin is a very old city, for we find mention of it as a town of importance during the first centuries of the Christian era. The old city occupied that portion of the present capital now known as the Liberties, Coombe, Thomas and other streets lying to the north and south-west. It is in this old and decayed district, now inhabited chiefly by the poorer classes, that death and sickness are always rife, and it is never without the germ of malady in its precincts. It would be impossible for it, or any old part of an ancient town, to be healthy, when it is surrendered to the poverty-stricken, where streets are narrow and saturated with the foul deposits on their surface during those ages—where rooms are small, low, and rotten—with walls reeking with the damp and filth of long years, and every spot from cellar to roof tainted with a sickening odour from over-crowding and animal decay in their house yards (if there be any), and from most defective sewerage. . . . . There are in Dublin about 3,000 condemned houses—that is, these that are not only in a falling and ruinous condition, but those which have not a yard or sanitary arrangement. . . . . Some of those houses have yards, but they are indescribably disgusting, and the people who live in dwellings that have none, of course, convert their streets into a manure heap. There is no ventilation in the rooms, except what the open doors and broken glass may afford, but the air that enters these openings is as bad as the atmosphere inside, as it is heavily laden with the poisonous gases from the filth in the yard and streets, which is inevitably drawn inwards by the heated air of the crowded chamber. The air we breathe, when pure, is composed of oxygen and nitrogen, but when evolved from our persons it has become carbonic acid, which is incapable of supporting life. In the process of respiration a man draws with his chest 20 cubic inches of air, and allowing 15 inspirations per minute, he will take about 300 cubic inches of atmospheric air; but this calculation does not include the carbonic acid emitted by cutaneous (skin) respiration, which will make a total of at least 2 cubic feet of air unfit for respiration; so that in a room, say 14 feet square and 9 feet high, one person would destroy the pure atmosphere, and die in 15 hours if shut up in such a room without a supply of outer air. This inexorable law of nature is applicable to the patrician and the peasant, but in the case of those under consideration, the dissolution would be much more rapid, as the carbonic acid is excessive from bodies never bathed, clothes never taken off until in a falling condition, and then replaced by others in nearly as bad a state. Until those haunts of decay, sickness, and death are swept away, and light and air play over those plague-stricken localities, no main drainage will effect a cure; the cancer is above ground, and the Liffey is but a suppuration from the deadly sore. Without exaggeration the condition of this class in society is in truth pitiable, as born in poverty, brought up in want, their existence is a perpetual struggle to obtain sufficient food, and that of the coarsest; live they must, but how to sustain nature is their hourly incubus, and now that mechanical appliances are rapidly superseding manual labour in the field and factory, the number of the poor is yearly increasing. . . . . It is pleasant to see those model artisan dwellings rising up in various parts of the city, but it is questionable if it be judicious to build such lofty structures, compelling a number of families of diverse tastes and habits to live under the one roof, as the quarrelsome, drunken, and noisy will not only disturb the quiet, but familiarity with such neighbours may first blunt and then attach those who have hitherto lived decently and morally, whereas if the dwellings had been simply cottages these jarring elements would be no more hurtful than those to be found in every thoroughfare. Those places have one all paramount imperfection which is highly censurable, that is the size of the yards at the rear, and which contain the ash-pits; these places, in some instances, are only four feet wide from side of ashpit to the back walls of the houses, the pits are uncove ed, and the back room windows are immediately in front, having no other view than the loathsome contents of those receptacles. . . . . The house rents of Dublin are very high, so that even the respectable clerk in every department, and others of incomes under £100 per annum, are compelled to live in lodgings, as, until very lately, they could not find a house under £40 per annum; however, many dwellings are now erected at a less rent, but, unfortunately, the sites are chosen more for cheapness of ground rent than for health. Several of such streets, or terraces, are built on plots of ground not only very badly drained, but often on sites that for years have been the receptacles for every refuse from old building materials and ashpits, with the view of absorbing



the water and elevating the ground; so that such residences are actually built over decaying and gaseous matter, most injurious to the health."

The death rate quoted for Saturday, 15th February last, is certainly a seriously high one, showing that our unfortunate city was far ahead of other chief cities and towns in the sister kingdom; and we certainly do not agree with the reasons put forward by our medical health officers, though to some small extent they may account for a portion of the heavy death rate. House rents are high in respectable quarters of Dublin, and we quite agree with the author that some of the so-called model buildings recently erected in Dublin for the working classes do not deserve the name. Many of the old tenement houses are preferable to them, and with a little judicious alteration several of those old private mansions, once inhabited by our gentry, in private streets could be made healthy homes. They were originally well built, and of good materials, which cannot be said of most of our so-called improved dwellings.

The picture that Mr. Houghton draws of the muddy state of the streets on a rainy day, of mud, thin and thick, oozy and semi-solid, of mud composite, or transformed into a dry compound, and pulverised again into blinding dust by constant passenger and vehicular traffic, is scarcely overdrawn. He writes thus of our streets:—

"The attempt to keep the streets of Dublin in proper order is most expensive, and the outlay is well nigh valueless, by reason of the daily excavations necessary for the constant repairs or renewal of the gas, water, and sewer pipes. There can be no uniform hardness or levels under such treatment, as the soil is continually upheaved and replaced hurriedly and carelessly, more especially since the introduction of the tram lines, which necessitate the repairs to be executed between midnight and early morning, so as not to impede their traffic. The earth of the streets is therefore of various hardness and surfaces. . . . The asphalted streets are likewise torn up for similar purposes, and even they are patched and uneven, clearly proving that the plan of central mains in the middle of the streets, with a separate branch to every house, denotes great lack of engineering skill, in thus compelling them to be ploughed daily, several feet deep, to mend a solitary half-inch pipe. The practice of sweeping the dirt of the streets into heaps along the footpath, and leaving it to drain into the sewers, and fester in the sunshine, is injudicious, as the fermentation is most unhealthy to the locality. They should be at once removed. This is indeed no easy labour, because of the immense quantities of matter that are formed after the mildest rain. . . . The streets require a uniform surface, made of a substance that, like asphalt, has no joints, would be more lasting, and having a springiness that will be a protection to the horse. The expenditure may be in excess of the known pavements, but the saving in the scavenging will more than recoup the extra expense, and the temperature of the streets be raised much higher from the dry surface, instead of the perpetual damp vapours off the present moist streets. It would likewise relieve the sewers of vast quantities of decayed substances that leave a great deposit, and add considerably to the accumulation of filth in the river, which undoubtedly needs no such addition to its legitimate use. . . . Rain-water pipes should not discharge on the surface of the streets, as the force of the descent would flush the house sewers, instead of being lost by distributing the water over the streets to wear the surfaces, and leave deposits hurtful to the eye and lungs, and add materially to the universal dampness. Shade of Hercules, would that thou wert in the flesh, and in Dublin if but for a little time, that thou mightest clean and make pure this city at a reasonable charge."

No one can deny the wretchedly imperfect system of scavenging that is carried out in Dublin. A few of the leading thoroughfares are swept, but even in those if the scavengers are not closely watched they will sweep down the liquid mud through the gratings or sewer opens. If the streets were well paved, and had a proper fall from their centre to their sides, a sharp shower of rain would, instead of creating a sea of mud, act as an efficient cleansing agent, care being taken that the accumulation of dirt and filth in the side channels would be kept from being

carried down wholly or in part through the sewer gratings. Heaps of semi-liquid mud are often allowed to lie for days drying in the sun, to be again rendered partly liquid by a fresh fall of rain before steps are taken for their removal. We do not wish to say a hard word against the poor scavengers, but it is as clear as the noon-day sun that the scavenging staff in our Corporation are for the greater part entirely unfit for their duties, through age and physical infirmity.

Mr. Houghton next treats his readers to a little bit of criticism on the burning question of main drainage:—

"It may not be out of place to give a little consideration to the proposed main drainage scheme, to build intercepting sewers north and south of the banks of the river Liffey, and discharge their contents into Dublin Bay, outside the Bar at Dollymount. This exit is selected in the belief that the tide will not at that point carry the sewerage [sewage] back to the city. Judging by the actual state of the Thames at the place where the sewerage [sewage] of London is discharged into that river, the water is so horribly polluted in its neighbourhood that the stream is literally heavily poisoned, so much so, that the awful loss of life in the catastrophe to the Princess Alice, a few months past, is rightly attributed to the unspeakable foulness of the water, which at once deprived them of life, and so disgustingly changed the form and features of the dead, that almost the sole recognition of friends was by the dress of the deceased. Such an atmosphere—such a tainted water, is the inevitable result of concentrating the enormous mass of a city's offal into a position not subject to rapid tides and constantly deep water. It is doubtful if in the most ignorant and savage countries the habit of corrupting their rivers and lakes by animal matter would be tolerated for a day, but here, in Great Britain and Ireland, there is scarcely a sheet of water but is made use of as a cess-pool, to receive the filthiness of every adjacent villa or town. So long as the sewers discharged nothing into the river but rain, or, at the worst, soapy or vegetable water, not much injury was done to the atmosphere or the tidal river, but when plumbing works were erected in houses, and every abomination was copiously thrown into the stream, and that a sluggish one, the natural result is a duplicate of the London water at Barking Creek. There is but one simple, but most effectual cure,—and it has the additional and powerful recommendation of being inexpensive to corporate bodies, and consequently tending to less taxation on the citizens,—that is, at once cut off all connection between the main sewers and soil-pipes. It is against all reason that people who desire to have water-closets, housemaid's closets and urinals, will make use of the public sewers, and that river which should be a purifier to the crowded city, instead of what it has been converted to, a sink for every vileness. Plumbing arrangement is private property in the same sense that water and gas is, for although we pay for both of these, we are not permitted to ruthlessly discharge such elements into the streets to the injury of outsiders—in like manner we should confine our *débris* to our own premises until removed as required; by this arrangement, the river will be restored to a comparatively pure condition. It matters not how cleansed a drain may be, it is but an empty shaft for the unobstructed advance of—it may be, a death-stroke from adjoining branches; in short to the anxious resident of any house, this dread of such a propinquity to poisonous exhalations is a perpetual incubus: therefore, its removal by complete isolation from animal matter, must be hailed with great satisfaction; and although, in the following pages, suggestions are made for improvements under the present system, it is in anticipation that the authorities, as usual, will be slow to adopt any measure that has the ban of newness. This insensibility to the health of towns is a natural result of the corporate bodies being formed of merchants, with scarcely a representative from the engineering or architectural professions. This is a singular omission, when it is considered that almost all their duties are confined to the paving, lighting, and cleansing of the streets, and everything that should tend to the improvement of the sanitary arrangements. Their official business is not one of barter in the change or exchange, and positively not for religious or political discussions in the council chamber to the exclusion of their legitimate consultations for the welfare of their town. By this severance the river will no longer be a blight in the city. The house-drains and main-sewers having no solid animal matter, will be easily flushed and cleansed by the rains, and of course, will at most but feebly contaminate the water mains through any vulnerable opening; the soil of the

city will become less rank with fetid odour, and a decidedly improved tone be given to the general health. . . . This is no time for political or religious consultations on the subject, no time for learned analyses of the Vartly water, sewerage [sewage], or air, no time for rapid and unlearned suggestions, as admittedly animal matter fills the earth, air, and water of Dublin. What just cause or impediment is there then that this main and most deadly atmospheric foundation should not be removed, by compelling the contents of all soil-pipes to be discharged into properly covered sunken ash-pits or cess-pools in the yards or gardens of the houses having such pipes? These receptacles can, of course, be cleansed in the usual manner by carting—but where to? Not, it is to be hoped, as is the practice, to fill up low grounds over which houses are subsequently built, and thus become so many permanent plague sections. But the Corporation should provide positions in the neighbourhood of earth cuttings, where such deposits can be deodorised by constant covering with the clay; thus a valuable manure will be made at those depôts, the sale of which will amply pay for the use of the site and staff of earthmen. By this means another powerful cause of sickness will be removed, as there will be no vitiated exhalations from numerous places scattered about the city; and if to these improvements the compulsory removal of slaughter and other repositories and dairy yards were added, little would remain of the chief drawbacks to the health and strength of a large community. To an over-taxed city such as Dublin, the pecuniary relief would be great, for the contemplated works, if carried out, would greatly increase the taxation, and thus be ruinous to its house property. It would not, however, suffer much from an infinitely smaller loan for the purpose of pulling down the decayed districts, leaving them open spaces for air and recreation, and building cottage dwellings for the poor on the boundaries of the city. By this means these habitations would be open to the charitable visits of the philanthropist, to the hirer of labour, and for the detection of crime."

The question of a main drainage for Dublin has so often been treated in years past in these pages, we may be excused from entering on the subject just now. A judicious scheme will have to be carried out sooner or later—a scheme, if not entirely commensurate with the want of the city, one at least suited to the financial circumstances of Dublin.

We are well acquainted with sanitary defects "Over the Surface," but we will not undertake to endorse all that Mr. Houghton has ventured upon asserting respecting "Under the Surface." This at least we do know, that, the house drains of many of our old dwellings in various quarters of the city are very bad and unserviceable; and in respect to the cheap class of speculative buildings the house drains are make-believe in some instances, and badly laid in the majority of cases. We know this from our own practical examination, constant visits and experience extending over a number of years. The supervision over house drains in Dublin is almost nil, and, where attempted, of a perfunctory kind, save where a respectable architect and builder have been employed, and have a reputation to sustain. The evils of bad house drainage, imperfect jointing of pipes, and their connection with the street sewers, are evils of magnitude, and the direct results are obvious to all intelligent persons not to speak of sanitarians.

There are some useful hints in the chapters on Dress, Food, Personal Cleanliness, Public Baths, and kindred subjects dealt with in the pamphlet, as also in respect to the sundry sanitary appliances needed in all houses where occupiers desire to live in health and avoid illness. Under the head of "Sanitary Control," in his final chapter Mr. Houghton tells his readers what many of them already know, and which they no doubt would like to see remedied. The following reminder will scarcely be pleasing to a portion of the City Fathers:—

"The only lucrative professions are distillers, brewers, lawyers, and doctors; and about the safest investments are shares in Mount Jerome and Glasnevin Cemeteries, whose boundaries have been much enlarged of late at great expense; they are seldom in the market, as the people, or the Corporation, or the Ballast Board, or the Board of



Health, or something, or somebody, and one or all, has or have done their utmost to make Dublin an unhealthy City."

And that something in the aggregate is stated as it has been stated scores of times by ourselves and others. The Corporation itself, although they are not entirely responsible for the miserable sanitary condition of the city, must allow that their inaction in many directions during past years has powerfully contributed to the present unhealthy condition of Dublin. Cause and effect stands forth plainly manifested. The power of prevention to a great extent existed in the hands of the Corporation, if there was a will to use that power wisely and well. Dublin is paying the penalty of corporate supplemented by personal neglect. Our city over large areas needs to be re-created, re-built, and festering rookeries pulled down. Wholesale demolition is not advisable even if it were possible, for much of the old house property in certain localities is capable of repair, and the landlords or owners should be made to keep their houses in a healthy and habitable state. In portions of the north side of Dublin as well as in the south side, there are streets of houses in a tumble-down condition for long years, the haunts of vice and the abodes of grinding poverty. Who will carry out a sweeping measure of street improvement? As at present situated and constructed the Corporation will not, if they cannot, for their cry is a *non possumus*. Will greater taxing power assist them, or will wealth obtained otherwise from their own estate or by measures of public improvement? The prospect, whatever way we view it, is not a bright one, and the needed reform, come however it will, must be slow. Come it would surely, if a determined effort was made by our municipal body to do the work by instalments according to its means, and with the spirit that actuates in corporations and town boards in other parts of this and the sister kingdoms.

#### THE CIRQUE, ROTUNDA GARDENS.

For some weeks past a wooden structure of colossal dimensions has been rearing its head in the above-named gardens. It is intended as a permanent erection for the equestrian performances of Mr. Charles Hengler's famous company, at present drawing large houses in the Ulster Hall, Belfast. The arrangement of the present building is somewhat similar to that which stood on same ground formerly, the scale being considerably enlarged. From what we have already seen of the building and its construction, we can safely say that no building of its magnitude, in timber, can vie with it for strength and rigidity. It is calculated to seat 5,000 persons. The system adopted for the lighting of interior, as well as the decoration of same, not omitting to mention the provision of comfortable box and stall seats, cannot fail to secure (as heretofore) the patronage of the public. The contract for the Circus was entrusted to Mr. Robert Worthington, 40 Dame-street, who has certainly executed his work in an exceedingly creditable manner. The cost of the entire will be about £2,000. The opening will take place in about a fortnight hence.

#### CHURCHMAN, CRAFTSMAN, AND ARCHITECT.

As a professional contemporary observes, the Rev. George Sanger, of Carlton-in-Cleveland, is indeed a "versatile vicar," and he has also the reputation of being an able preacher. This many-sided individual has issued a circular to his parishioners in vindication of his conduct, from which the following is an extract:—

"I feel sorry for the necessity of a letter to vindicate my conduct in re-building the parish church, which became so dangerous after last August gales that service could no longer be safely conducted under its roof. If I had not taken upon

myself the re-building, the burden would have fallen upon the parish. You must be aware that I have worked as few clergymen have worked to rebuild the church. I worked as a bookbinder, to get the money for two years; obtained subscriptions, writing upwards of 2,000 letters; designed the building; acted as clerk of works and contractor; carved all the wood and stone; and worked with the men employed; and I ought to be allowed to complete the work in peace, not be publicly insulted for the benefit I have conferred upon the parish in building a church, for elegance is second to none in this locality."

Being in the distance we know nothing of the accusations preferred against this versatile vicar, nor can we speak in a commendatory way of his abilities as an architect, not having an opportunity of seeing his work. The vicar's energy, self-help, and versatility, are however apparent from his own showing, and on these heads his efforts are entitled to a kindly word by way of encouragement, and as pointing out an example for others to follow, to some extent at least. Our churchmen could put their shoulders to the wheel more often in doing useful work even apart from church building. The cause of education, health, and charity, afford them ample scope, and fields in which their services can be usefully given for the good of the many.

#### THE NEW POST OFFICE, CORK.

In a few days (says the local *Examiner*) the new Post Office, in Old George's-street, will be handed over to the Postal Telegraph authorities by the builder. For some time past a great want of proper accommodation for the public and the officials was felt in the old building, situated in Pembroke-street, and it became apparent to the authorities that some improvement was necessary in every respect. It was at first thought that the whole block of houses between the old Theatre Royal and the Imperial Hotel would be swept away, and a fine building occupying the entire space erected thereon. It was found, however, that the price placed upon these premises by the landlords, was far beyond what the authorities were inclined to give. Negotiations were entered into, but no satisfactory arrangement could be come to, and as those in authority did not wish to put their compulsory powers into effect, they contented themselves with purchasing the site of the old theatre. Where once were witnessed remarkable displays of histrionic ability, and where many times were heard the sweet notes of the stars in the musical world, is now heard the "clie clic" of the busy telegraph, and the bustle attendant upon the transaction of business in a large government office. *Tempora mutantur* the temple of Roscius has passed away, and in its place is the practical and unromantic pile, where letters are posted and from which telegrams are transmitted. This building has been erected at a cost of £8,000, and though not at all what it should be as regards exterior appearance, it is a very solid, substantial concern, possessing internally a variety of modern improvements; when we say it is not what we would wish to see externally, we mean that a little more money might have been granted by the government for the purpose of enabling the builder to put an imposing front on the new office, and one that would have some pretensions to architectural beauty. It is, however, as it stands at present, a fine, well built office, that will, no doubt, stand the ravages of time and the elements remarkably well. The first storey is entirely of limestone, and the others of local sandstone, with dressings and cornices of the limestone. There are three tiers of boxes that will be disposed of in the usual way, for letters, newspapers, &c. On entering the doorway there is a large hall, on the left hand side of which is a fine room 60 ft. long by 38 ft. broad. It is splendidly ventilated, and commodious in every way. This is called the "sorting room," but, for the present, portion of it will be thrown open to the public for the purchase of stamps, trans-

mission of telegrams, &c. This arrangement will only continue while a number of very necessary changes and improvements are being made in the old building. When these changes have been carried out, this room will be closed to the public, who will then be obliged to buy stamps, and stamp letters, in the old office, as at present, and then will have to walk round to the new building for the purpose of posting letters. This is a very awkward arrangement, as it involves the loss of a good deal of time, which will be felt very much by business men. We hope the postal authorities may see their way to change this, and allow the entire postal business to be transacted in one office. The entire front portion of the building is devoted to the postal department, and the rear portion to the telegraphic department. Behind the sorting office on the ground floor are the telegraphic stores and waiting rooms for the messengers. A noticeable feature in the new Post Office is the extensive use of concrete. The division walls, steps of stairs, arches and floors are made of concrete, and this is the first place in Cork in which every step in a flight of stairs, numbering nearly a hundred steps is composed entirely of concrete. Concrete is coming into vogue very much of late, and those who are competent to pronounce an opinion, speak highly of its strength and durability, no matter for what purpose it may be used. The staircase is a very fine one, with a well of 15 ft. square. The steps and landings are cast in concrete, with iron balustrades and massive oak handrails. The back room on the first floor is devoted to the telegraphic department, and is called the instrument room. It is a very large room, being 60 ft. long by 60 ft. broad, and is amply lighted and ventilated by an open roof. It is the intention of the authorities to employ females in this department, in accordance with which view special arrangements are made for their comfort and accommodation. The first floor in front is taken up by the Postmaster's and other offices, and the top storey also is occupied by offices, utilised by those employed in the Telegraph department. The building was designed by Mr. J. H. Owen, Architect of the Board of Works, and the contract was carried out by Mr. Richard Evans, Cork, in a manner that shows we have men in Cork who can turn out work as well as many of the best firms in England. We must certainly say that the way in which every little bit of detail has been attended to proves the care and attention bestowed on the work by Mr. Evans, aided by Mr. James Williams, clerk of works. It is proposed to join the old and the new buildings in a short time, and then every item will be complete, so as to afford every facility to the public, and make the clerks and others as comfortable as possible.

#### ELECTRIC LIGHTING.

THE Commons Select Committee on Electric Lighting met yesterday. Dr. Siemens stated that by the use of electric light on one of his ships a collision was averted on the Atlantic during a fog. A less powerful light would have been useless. He thought the light should be used at sea, and no doubt it would be by the great Atlantic steamers. In foggy weather it would illuminate a distance of two and a half miles. The light also made a splendid signal. It was also suitable for lighting large halls and spaces. In lighting the Albert Hall the electric light cost about one-fourth less than gas. The light should be placed high, and shaded glass dispensed with as much as possible. It could be subdivided, and for city use steam engines to work electro motors should be placed at various stations. He did not think it would greatly interfere with the consumption of gas. The electric lamp was susceptible of great improvement.

Visitors to Christ Church Cathedral are now required to pay a toll of sixpence each.



### THE BALFE AND MOORE MEMORIAL WINDOWS.

THE Balfé memorial, a scant tribute as yet to the genius of our great composer in his native city, was unveiled on the 12th ult., by the Duchess of Marlborough. It is placed in the southern aisle of St. Patrick's Cathedral. The main portion of the window shows a figure of Erin placing a laurel wreath on the head of Balfé, the left hand rests upon an ancient Irish harp and beneath is a lyre. An inscription tells the erection is owing to the action of Sir Robert P. Stewart, Mus. Doc., who certainly deserves commendation for his praiseworthy appreciation of the worth of Balfé. The work has been executed by Messrs. Ballantine, of Edinburgh.

We would like to see a movement on foot to erect a memorial window in some Dublin church close to the street where our national poet was born, to his memory. Mr. S. C. Hall is, as we write, bringing out a little work, entitled, "A Memory of Thomas Moore." Mr. Hall's acquaintance with Moore dates back to 1821, nearly sixty years, and both Mr. and Mrs. Hall were the friends of the poet, and had repeated correspondence with him during his life. The object of Mr. Hall in bringing out the "Memory" is not pecuniary gain. The proceeds of the publication are to be added to a fund for placing a memorial window in the Church of Bromham, adjoining Sloperton, Wilts, where the poet is buried. A modest tomb covers the remains of Moore's widow, who died in 1865, and those of his three children. It is intended to place the memorial window in the church at Bromham on the 4th of September, the anniversary of Mrs. Moore's death. One has already been placed to the memory of Mrs. Moore by her nephew, but the forthcoming one to the poet is intended in the light of a native or public duty. The entire cost will not exceed £200, and surely several of the nobility and gentry of Ireland residing and having property in England will not fail to assist in such a praiseworthy effort. Apart, the lovers and admirers of Moore's works are legion. Large contributions are not asked, but guinea subscriptions which can be spread between a large number of those able to contribute, and who by doing so would be honouring themselves, their country, and the genius of Moore, "the poet of all circles." It was Mr. Hall who some years since caused the tablet to be placed on the front of the house in Aungier-street; and if his health permits, it is his intention to attend at the forthcoming Centenary Celebration.

### THE LIGHTING OF DUBLIN HARBOUR.\*

FROM the giant strides that are now being made in the improvement of the harbour of Dublin, rendering it fitting for the reception of the largest vessels, and the daily increasing importance of the means of communication with the other seaports of the world, we consider it time that some steps should be taken for the erection of a proper system of lights to guide these vessels from the entrance at Poolbeg to their several berths along the river quays.

In 1820 the harbour light was erected at the end of the North Wall, and was excellent for its purpose, consisting of five first-class oil lamps in the foci of silver reflectors, 21 in. diameter, and supplied with spermaceti oil. It was about 28 ft. above high water, and sufficient for the wants of the port. From the increasing number of vessels visiting the basin called Halpin's Pool, it was found that their rigging intercepted the light to the southward, and it was necessary to remove it to the edge of the quay. In 1861 a sixth order dioptric light that had been in use at Spit Bank in Cork Harbour was erected on a small sheet-iron cylindrical building, which some years afterwards was precipitated into the river during the work of underpinning

the quay wall. It is a strange instance of generosity on the part of the Board of Trade that they never charged for the lost apparatus! Since then a fifth order dioptric light with vertical condensing prisms and a holophote has been in use with good effect.

But it is to the eastward of a line which in the good old times we would describe as from "Hatch's Corner to Shalloway's Baths," that the improved lighting is required. At Harfleur and Honfleur, and other harbours on the French coast, most ingenious lights are coming into use, from the workshops of M. M. Barbier et Finestré of Paris, which are not only most strikingly attractive, but from changes in the depth of colour serve to mark the height of tide on the bar. We would wish much to see such an arrangement brought into use in Dublin, but it should be in combination with more powerful lighting media than the French have as yet adopted.

To judge from the almost perpetual howling of steam whistles, sirens, and other "Banshee" noises, combined with guns from the Kish Bank and bells from the Baily, Kingstown, and Poolbeg, the harbour must be in a chronic state of fog, and we can well imagine how useless the lofty light of Poolbeg must be for such a case; when it was raised to its present elevation, some sixty years ago, it was intended as a sea light, with a range of about 13 miles in clear weather. Its bells, by Mears of London, were supplied in 1821 by Clarke of Ringsend and Aston's-quay, who erected them and provided the tolling machinery. They can be heard at the distance of five miles inland, although it is not improbable that at the base of the tower and under similar circumstances they would be inaudible. Still they are quite as good as the generality of bells in such situations, and even those erected within the last few years in other countries. The largest fog-bell in the world is at Roche's Point, Cork Harbour. It was cast in Messrs. Sheridan's foundry in Dublin in 1874, and weighs 5,650 lbs.\* Bells on balconies appear to have been long since abandoned by the engineer to the Irish Lighthouses, although still retained by other departments.

From the regularity with which the mail service between Kingstown and Holyhead is performed in all states of the tide and atmosphere, we may take it for granted that so far as the former harbour is concerned the lighting of the way is tolerably satisfactory, only wanting a house on the Muglins to make it perfect; but this need not be hoped for until some man-of-war or other large vessel comes to grief (the last proposition we heard of was to whitewash the rock, already as white as paint or wash could make it, a specimen of the amateur Whitehall engineering that poor Paddy is periodically treated to).

From a line in the longitude of Kingstown pier-head to the North Wall light is the portion requiring special marking, the width of the bay being large and the area dangerous, whilst the entrance between the Crablake and Poolbeg walls is comparatively very narrow—about 1,000 feet; and, as we before remarked, the light at the end of the south wall is altogether too high, and likely in thick weather to be out of sight. There are many instances of lights having to be removed for this reason; and in Ireland we can remember several—as the Howth, Skelligs, Cape Clear, Wicklow Head, &c.; at the same time we are aware that there is a popular though fallacious opinion to the effect that lighthouses cannot be too high. We saw a recommendation some time ago from a correspondent in a contemporary to raise Poolbeg light, but science has long since settled this point, and the effective height of a lighthouse can be determined to an inch. Not only is the old lighthouse too high, but the new one at the end of Great North Wall has the same fault. The Great South Wall presents an opportunity of fixing lights for the river not often to be had in such cases, and the patent gas-light, so rapidly forcing its

merits into notice, is particularly adapted to the purpose. Commencing at a short distance west of the Poolbeg dwellings on the wall, at the Half-moon Battery and a short distance to the eastward of the Pigeon House, small houses could be erected of some convenient material, probably corrugated sheet-iron; these should be provided with ample means for ventilation, and for the consumption of gas by the largest Wigham burners, of 28, 68, and 108 jets, at a focal height of 25 feet over high water; for each burner a lens should be provided, specially ground to counteract the dispersion of the great diameter of flame and bring it into an angle of from five to six degrees of greatest divergence; a house of 12 feet in length by 8 in breadth would give ample space for these three lenses, which could be hung with pulleys in frames, and pushed up out of each other's way as requisite; the window in end of house could be furnished with a screen or colouring medium of gold ruby, which would give a red or rose-coloured light distinctive from that of ship's lamps. The foci for these lenses would be about 920 millimetres for the 28-jet burner, which is 96 m.m. in diameter; 1,773 m.m. for the 68-jet, which is 185 m.m. in diameter; and 2,616 m.m. for the 108-jet, which is 273 m.m. in diameter, i.e. 10½ in. The space between each lens would be about 2 ft. 9 in., which would be ample for all the purposes of the service; but these figures are by no means arbitrary, and the matter is altogether one of calculation. We have merely noted these as being convenient for angles of divergence of 5°, with the diameters usual in the patent burners.

A light would be useful between the Pigeon House and Ringsend, and two on the north side, say at termination of the concrete wall, and between it and the new lighthouse at end of Great North Wall. This is, however, a matter for engineering arrangement; and although the Irish Lights Commissioners have the power to inspect all the lights on the coast, it is competent for the Port and Docks Board, or any other harbour authority, to employ a lighthouse engineer for that special duty. The lighting of the port in the most effective manner known to modern science should not be delayed, and it has been proved beyond further cavil that the gaslight can be multiplied to a state of usefulness, particularly in fogs, not attained to by any other.

### BOOKS RECEIVED.

*A Memory of Thomas Moore.*—By S. C. Hall, F.S.A., &c. London: Virtue and Co. Dublin: William McGee.

WE have read Mr. Hall's "Memory of Thomas Moore" with an intense delight, and at one sitting, for we were so fascinated by the absorbing interest of the work that we could not bear to leave it aside until we had reached the end. A portion of the "Memory" had already appeared (early in 1865) in the *Art Journal*, but the present issue contains much new matter, and the author has had the advantage of corrections and suggestions from the poet's widow, who lived till September of the above-named year. It would be doing an act of injustice to Mr. Hall and the object he has at heart, and which is alluded to elsewhere in these columns, to give any long extracts from the "Memory." We would prefer to earnestly advise our countrymen and fair countrywomen, and, indeed, all lovers of our national bard, at home and abroad, to invest a shilling in the purchase of the volume, and we are certain their satisfaction will be great. The "Memory" is rich in literary recollections of authors and others. There is not a dull page in the whole book, and we question much if there be another man living besides Mr. Hall who could write so lovingly, sympathisingly, and withal present to the British and Irish public such a thorough and complete vindication of the moral character and literary fame of Thomas Moore. The work contains engravings of the house in Aungier-street

\* A description of this bell was given in the IRISH BUILDER of May 15th, 1874.



where the poet was born; the cottage at Sloperton, where he dwelt for several years; and his grave at Bromham.

In this "Memory" several important facts in connection with the poet's life, his friends, and anonymous traducers, will be heard for the first time, and in reading them the illusions of many literary men in the sister kingdoms and in Ireland will be dispelled. The reader will find in the "Memory" a picture or pictures of the inner life of Moore, his noble wife, and his children. None but those who had an intimate acquaintance with the Moore family and their friends and relatives, extending over a long series of years, could have presented us such pictures of glory and suffering, of hope and happiness. Mrs. S. C. Hall, too, as well as her worthy husband, contributes to the interest and perfection of the "Memory," and it has been a joy to more than one generation of our people that Mrs. Hall has lived to see the pleasing fruits of her labours in many literary walks receiving a practical embodiment—for has she not preached for more than an ordinary lifetime the lessons of self-help, self-exertion, thrift, economy, punctuality, &c., in her numerous racy tales and sketches of Irish life and character?

Think of it—1800-1879! Born in the one year, and living a wedded life of four-and-fifty years; yet eighty summers and winters, though it may have whitened the locks and wrinkled the brows of Mr. and Mrs. Hall, it has not wintered their hearts. They are both young and fresh in all the world of their friends covet; their converse of the present and the past affords a rich enjoyment, their esteem is appreciated and reciprocated, and their many admiring friends can never become their enemies, for there is nothing left for them to hate—but everything to love and revere. We shall not do an injustice to the author by extracting one paragraph—at least at present. Let the "Memory of Thomas Moore" be read carefully and as a whole, and let Irishmen thank God that an Englishman who knew Moore sixty years since, and up till the day of his death, still lives to nobly vindicate the name and fame of our national poet against all comers, in Press, Pulpit, and Forum, at home or abroad.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

### THE ANNUAL DINNER.

THE annual dinner of the members of the Institute took place at the Freemasons' Tavern, London, on Saturday, 26th ult. Mr. Charles Barry, F.S.A., President, acting as chairman. His Royal Highness the Prince of Wales as Patron of the Institute, together with a large number of the members of the Institute and representatives of the sister arts were present. After dinner, the chairman gave the toast of "The Queen," observing that he had been informed, on the highest authority, of the safe return of her Majesty from Baveno in good spirits and improved health.

In giving "The Health of the Prince and Princess of Wales and the rest of the Royal Family," the chairman observed that the Prince, like her Majesty the Queen, was a patron of the Institute. His Royal Highness, if he had thought fit to pass his time in splendid leisure awaiting the hour when in God's providence he would be called to reign over us, might have done so, assured of the attachment and loyalty for which Englishmen had been ever renowned; but, as they knew, he had chosen to take a very different course indeed. He had chosen—admirably chosen—to enter with zeal into public matters, to give his social influence, his personal labour, and his time to no stinted extent in furthering every movement among us for the advancement of the social or intellectual benefit of his country.

His Royal Highness in rising to respond, was received with enthusiastic and prolonged cheering. He said: Mr. President, my

lords and gentlemen—the terms in which your president has been kind enough to propose my health, and the way in which you have received it, deserve my most sincere and cordial thanks. I can assure you that it is with great pleasure that I am here this evening in your midst, not only as a guest, but as having the high honour of being a patron of the Royal Institute of British Architects. As has been stated by your president, I accepted and succeeded to the post after the death of my lamented father, who had held it since the year I was born. Two years after my acceptance of the position I attended a meeting of the institute, at which the father of your president, the late Sir Charles Barry, was present as vice-president, to receive me. Your president has made some most flattering remarks about me—far too flattering, I feel, in every way. He has alluded especially to the late Paris Exhibition. It affords me great pleasure on this occasion—perhaps the first public occasion since the Paris Exhibition was over that I have met a large assembly of my countrymen—to have this opportunity of expressing my thanks to the very large community who assisted me in those important labours during those two years, and especially during the one that has just passed. There were eight gentlemen who composed the Royal Commission, not to speak of many others who are here in this room, who took different parts in it. It has been admitted that the exhibition was a success. If it was, I owe it to those gentlemen who assisted me in those labours, whatever they may have been, and I owe it also to those great commercial, agricultural, and scientific bodies who so spontaneously came forward to exhibit their goods and their products, and who, with hardly any exception, responded most completely to the call that was made upon them. The work that I did on that occasion was really but slight, and it was one both of love and of peace. Those who worked with me acted always in harmony, and I have to thank again those gentlemen for having given so much of their valuable time to come to Paris and assisting in making the exhibition the success which you have kindly said, through your mouthpiece, the president, that it was. I must not forget one sitting at this table to whom we are all indebted more than to any other man—I mean our indefatigable secretary, Sir Philip Owen. In regard to this Institute of British Architects, I may mention that it was the unanimous opinion of the international jury that the architectural exhibits of England were better than—or at any rate held very high rank among—those of all other nations. I thank you for the kind way in which you have listened to the few remarks I have made. There are several other toasts, and as I shall have once more the pleasure of addressing you I will now conclude by thanking you again for the way in which you have drunk the health of the Princess of Wales and the other members of the Royal Family.

Mr. John Whichcord, F.S.A. (vice-president), proposed "The Army, Navy, and Reserve Forces," which was responded to by Lieutenant-General Lysons.

Mr. G. E. Street, in proposing "The Fine Arts," observed that architecture was the mother of all the arts. He coupled with the toast the name of the president of the Royal Academy.

Sir Frederick Leighton, P.R.A., who was warmly received, observed that the consciousness was gradually awakening among them of the high importance of a closer knitting together of the sister arts. They could do art no greater service than by working together to that end, but, at the same time, they must do it in a sober spirit, and without raising for themselves any childish or vain illusions. The whole tendency of modern times was towards the subdivision of labour. That was the result of the widening of the field of knowledge; for we now found that a single subject of study sufficed to engross the concentrated energies of one individual. There was no need, however, for an absolute divorcement between the arts

—indeed, such a state of things would be rather a reproach to them all, for in the spirit of its inmost efforts all art was one; it was one soul speaking to them through various tongues, one bright gleam flashing its fire through many facets.

The Chairman proposed "The Visitors."

The Lord Chief Justice, returning thanks, observed that no one could possibly appreciate in a higher degree than he did the greatness and utility of the architectural profession. No one was a greater admirer of art generally, but he above all appreciated architectural art and science, because it not only ministered to the comfort and happiness of mankind, but associated itself invariably with all the great events and epochs of our history. Only that day he had passed by the new building which was to be associated with the great profession to which he had the honour to belong, and he was struck by the marvellous beauty of the nascent edifice. It would not probably be finished in his time. The present courts would probably last his day, and perhaps it would be said of him that he was the last Chief Justice in England who ministered the law in that old pile called Westminster Hall. The edifice rising now would be associated with the great name of Queen Victoria and with amendments of the law, if they pleased, but Westminster Hall would still retain its great transcendent recollections of the great common law of England which had been the foundation of our liberties.

The Prince of Wales: My Lords and Gentlemen—The task has been deputed to me of proposing the last, though certainly by no means the least toast of the evening. I only regret that that toast has not been left to one who could do more credit and justice to it than I can. After the eloquent speeches you have so lately heard it is difficult for me to make one in any measure equal to them. I also feel some diffidence in proposing this toast, inasmuch as I have the honour of being a member of your body, but it is the duty of all individuals belonging to great societies to be obedient, and, therefore, I beg to ask you, and especially the visitors whose health has been so cordially drunk just now, to drink with me "Prosperity to the Royal Institute of British Architects," and I shall couple with the toast the name of your president, Mr. Barry. I thank you again for having asked me to dine here under his presidency when his year of office is so near over. I have to give you, gentlemen, "Prosperity to your Institute," coupling with it the name of your president, Mr. Barry.

The Chairman having responded, the proceedings terminated.

## MOORE'S "JUVENILIA."

### ACKNOWLEDGMENTS.

It must be pleasing to the author, as it is to lovers of Moore, to hear that the above-named little *brochure*, the original text of which appeared in these columns, has been warmly welcomed and appreciated over the three kingdoms. The Press, irrespective of sect or party, in the sister kingdoms, as well as in this country, and particularly the provincial English and Irish and the London metropolitan journals (in every instance in which it has been noticed), have had kindly words in its favour. It is but just to state here that the recognition is not confined alone to the Press, for we are at liberty to state that several distinguished British and Irish *litterateurs* (authors and authoresses), lovers of the works of Moore, have highly complimented the author of "Juvenilia" for his interesting essay as being an efficient and appropriate production for the time. As a citizen, but as a silent and hard-working literary man for years, we have known the author as one who has never been anxious to put his name before the public, though to our own knowledge his writings alone in connection with his native country and its capital, literary, historical, architectural,



antiquarian, and general (prose and poetry), if collected would fill several volumes. He has laboured at home and abroad, in the chief cities and towns of the sister kingdoms, and on the continent, and like most literary men he has had to experience clouds as well as sunshine, but the world has not been troubled with his complainings nor his literary friends ever importuned for assistance. We take the liberty of saying this much of one who is at present some hundreds of miles distant from his native city, and whose talent has ever been enlisted in aid of the moral and social elevation of his countrymen.

## CORRESPONDENCE.

### SATURDAY EARLY CLOSING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I would suggest that what really would be a benefit to working men, and place them in the best way of turning their wages and time to advantage, would be to pay them on Friday evening instead of Saturday, as several firms in Dublin have been doing for years. If this was to become general, there would be no necessity for so much discussion about early closing of public houses on Saturday, which can be easily understood—giving time for marketing early on Saturday, and when all places of business are open. Indeed it would appear that the working community are not much considered in the point of early closing, for we find the banks closed two hours earlier on that day than on any other day during the week; and we all know that it is very unpleasant to hold a cheque that you require cash for to pay wages, after the banks are closed. To meet this view of matters, it would be necessary for the capitalists who are getting works or contracts carried out, to contribute to this by making their payments in time to carry it out, instead of delaying until the last hour before they part with the required cheque. In my opinion the people who are trying to make the workmen moral are those who have means, and what is termed the "upper ten." Now this idea lies a great deal with them for the success of its being carried out, and would not cost them any more, but simply to have money matters arranged one day sooner (*i.e.*, Friday instead of Saturday); then every one would have the benefit of the Saturday early closing, and there are many ways for the workman to dispose of his time to profitable account for the few hours that are really his own; that would entirely turn his attention from the public house, and these traders would soon for their own comfort close early on Saturday. Nevertheless, I with the utmost confidence deny that the working men should consider that they are the culprits aimed at, or that they need take up the cudgel, as there are men with as much intelligence and shrewdness amongst that class, as in any other position in society; and there will be found a larger percentage of useless drunken members of society in the monied class than in the working community.

△

### THE "DOMESTIC SCAVENGING" RATE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—When last December the Corporation imposed a domestic scavenging rate for the first time, I called public attention to the fact that no plan or scheme of domestic scavenging had been prepared, and no estimate founded thereon submitted before striking the rate. Mr. Gray, M.P., replied, and, among other things, said that a plan was in course of preparation, and would shortly be made public. Four months of the new year have now passed, and as yet no plan of domestic scavenging has been made public, and I find myself requested to call attention to the following:—"The collection of town refuse by the city scavengers continues in

the several depôts as at Marrowbone-lane, Clanbrassil-street, &c. The collection of refuse by private parties in the several manure yards, dairy yards, cattle yards, livery stables, &c., as seen in Back-lane, John-street, Meehan's-lane, Cathedral-lane, Mill-street, &c., is also continued. The feeding of swine, ill kept, continues in many of the most crowded parts of the city. In a leading and fashionable street the house and kitchen refuse in many houses is collected in cellars and in the street area." In calling attention to those things I, of course, subject myself to the abuse of the official organ of the Dublin Corporation. Nevertheless, as a matter of common honesty in dealings between Corporation and rate-payers, some account should be given of the application of the money raised as a domestic scavenging rate. House refuse in fashionable streets would not be stowed away in cellars, but would be removed by Corporation carts, going round twice or three times a week at least, and those depôts of filth, public and private, so long condemned, would be abolished if only a proper application was made of the money collected from the ratepayers for domestic scavenging. How, then, has this money been applied? In increased salaries, in pensions, in new law expenses, or is it like the refuse stowed away in some dark cellar, waiting till some time when the scheme of domestic scavenging being forgotten, it may be available for the erection of a statue on the site of Nelson's Pillar to the tallest patriot of the present period?

April 30, 1879.

J. McEvoy.

## HOME AND FOREIGN NOTES.

**A CONUNDRUM**—Why ought a Jerry builder be a good vegetarian?—Because he dearly loves and most entirely lives and thrives upon "shoots."

The Corporation of Waterford have decided upon borrowing £15,000 for the completion of their water-works. This will bring up the amount expended to £55,000.

**LIMERICK**—The Corporation of Limerick have resolved to invite tenders for the cleansing and repairing of the streets in the city—a practice adopted some years ago, and found to work well.

**THE SIR JOHN GRAY STATUE**—The granite pedestal for this statue has been laid in Lower Sackville-street at intersection with Abbey-street. Mr. Thomas Farrell is the sculptor by whom the memorial has been executed.

**AN IRISH HISTORICAL NOVEL**—Mr. Lewis Wingfield, the author of "Lady Grizel," is bringing out an historical romance, "My Lords of Strogue." The scene is laid in Ireland, and the work will show considerable research in the chronicles of the interesting period between the Convention and the Union, unaffected by political proclivities.

The Pulsometer Pump is, we are informed, at present attracting much attention amongst Clyde engineers, owing to its novel construction, great simplicity, and entire absence of working parts, cylinders, or pistons. As this pump needs no oiling or attention it ought to prove an especial boon to steamship owners, the expenses entailed by the frequent repairing of the ordinary donkey pump being proverbial.

**THE MELBOURNE EXHIBITION**—There are already indications that the Melbourne International Exhibition of 1880 (of which we gave some particulars lately) is likely to be a success. The German Government has signified its intention of following the example of Great Britain, Holland, and other European Governments in appointing a commission to assist intending exhibitors. A large number of applications for space are being received daily from British manufacturers and others.

**STATUE OF WILLIAM TYNDALE**—It is proposed to erect on the Thames Embankment a statue of William Tyndale, the first translator of the Bible into English. A committee has already been formed to carry out the suggestion, and the Metropolitan Board of Works has granted a site. The expense will be from £3,000 to £4,000; and the Archbishop of Canterbury, the Lord Chancellor, Lord Shaftesbury, and the Duke of Westminster are among those who have joined the general committee.

**STATUE OF MR. GLADSTONE**—A life-size statue of Mr. Gladstone, lately executed by Mr. Thied, forming a companion statue to those of Mr. John Bright and Mr. Villiers, has just been placed in the Manchester Town Hall. It occupies what may be considered the post of honour—namely, the central niche in the public hall, between the principal entrance doors. The right hon. gentleman is represented as addressing an assembly. The attitude is perfectly characteristic, and to all who have seen Mr. Gladstone on the platform at any public meeting it must be very familiar.

**THE IRISH LIGHTS COMMISSIONERS**—Steam yacht *Princess Alexandra*, Commander A. K. Galwey, with the usual staff on board, left Kingstown on 28th ult., to make the annual preliminary inspection of lighthouses on the coast, and serve out oil, stores, and furniture. It is much to be regretted that Mr. Sloane was unable from indisposition to accompany the party, and give them the benefit of his unequalled experience of the coast and lighting arrangements. We hope he may be shortly able to resume work as a consulting engineer and architect, a sphere of usefulness for which he is particularly adapted.

**PROPOSED IMPROVEMENTS IN THE HOUSE OF COMMONS**—Mr. Edward Barry, R.A., architect, has submitted a report upon the best means of improving the accommodation in the House of Commons, for reporting the debates. He proposes to alter the shape of the northern gallery of the Chamber by substituting a horse-shoe formation, and taking in a portion of the members' galleries to the right and left so far as the doors leading to the writing-rooms over the division lobbies. It is also proposed to make four rows of seats in front of the curve, with desks attached. Space for two of these rows, it is suggested, should be obtained by cutting away the partition at the back of the present gallery, and impinging upon the ante-rooms under the ladies' gallery. Mr. Barry's report is submitted to the Select Committee appointed to consider the subject of parliamentary reporting; and if approved by them will very probably be sanctioned by the House. The alterations, however, cannot be made until after the prorogation of Parliament.

**ARE EMPTY HOUSES DANGEROUS?**—This question may be fully asked and answered at a season when thousands of families are thinking about deserting their homes for a few weeks, to enjoy themselves at the seaside or in travel. It is asserted that houses that have been shut up for a time may become breeders of disease when they are re-occupied, and that such disorders as typhoid fever and diphtheria have occurred under these circumstances. The cause is considered to lie in the disuse of cisterns, pipes, and drains, the putrefaction that is engendered by the impure air in them, the unimpeded access of this foul air to the house, which is at all events not interfered with by the closing of doors and windows against the fresh air. There is, fortunately, a very simple remedy in such cases. On returning to town, paterfamilias should take care to see that the pipes and drains are in good order, that the cellars and closet are freed of rubbish, and that the whole house is thoroughly well aired before the fiat for re-possession goes forth. Carbolic acid plentifully used in the cellar is both a cheap and valuable disinfectant. If these straightforward precautions are observed, no personal harm can result from the home-coming of the pleasure-seekers.—*Cassell's Family Magazine* for May.

**OFFICIAL WHIMS**—The law officers of the Crown must have curious ideas on some subjects. They have just decided that circulars produced by the papyrograph, Edison's electric pen, or the type writer, are not entitled to postage at book rates, and consequently from May 1st no circulars are to be transmitted except those produced by the older-fashioned typographic or lithographic methods. At the same time a manuscript performance like an invoice, which is not under any pretext a circular, is allowed to count as one! It is a pity these legal officials cannot be invested with a certain amount of common sense. Though hardly germane to our trades we cannot refrain from mentioning two other cases, of their erratic opinions. On the late question of the London School Board accounts, the Attorney-General and the Solicitor-General flatly contradicted each other as to the legality of a certain step. More marvellous still, the Master of the Rolls and the two just mentioned Crown officers all united in granting a certain patent in their capacity as Commissioners. A few weeks after they all three were concerned in discussing that same patent; the Attorney-General opposing it, the Solicitor-General defending it, and the Master of the Rolls holding the balance of justice between the two colleagues!—*The Paper and Printing Trades Journal*.



**GAS AND ELECTRICITY**—On the 25th ult. Professor Tyndall was the principal witness examined by the Select Committee appointed to inquire into electricity. The learned professor gave a brief history of the discoveries which had led to the adaptation of electricity to lighting purposes, treated the committee to many interesting experiments, and finally gave his opinion that very extensive improvements in the electric light must be regarded as inevitable. With regard to gas he did not believe it would be beaten out of the field by the electric light; there was too much use for it.

**A MUNICIPAL ANOMALY**—In the "Land o' Cakes and Brither Scots," as Burns sang it, there is at present a hurch without magistrates. The provost, magistrates, and members of the town council in the burgh of Culross having resigned office in November last, a petition should have been presented to the Court of Session for the appointment of three persons to take the management of public affairs, but the town clerk has been unable to find any of the ratepayers willing to act in that capacity, and that functionary is left to discharge his duties as best he can. On the day fixed for the holding of the annual licensing court for the burgh, there being no magistrates no business could be transacted. The case is said to be without precedent in this land. The town clerk of Culross has certainly no sinecure if he has to do the whole duties himself. Are the ratepayers, we wonder, content to pay him his salary? Selkirk, like in Culross (in the birthland of Selkirk), the town clerk is in some respects like the hero of Defoe's novel, "a monarch of all he surveys," parochially at least, and for his own sake let us hope he is also lord of "the fowl and the brute." Happy solitary!

**MORE RED TAPE**—The Irish Lights Commissioners will this year add to their cheap and nasty paraffin oil stations the following, viz., Roanecarrig, in Berehaven; Skelligs and Samphire Island, off Coast of Kerry; Aran Islands, north, at Eraght, and south at Inisheer Islands; Mutton Island and the two lights on Slyne-head Island, all off the Galway coast; and the two lights on Rathlin Island, County Antrim. These latter are particularly well suited for gas; there are ample means for unloading vessels at the village in Church Bay, with excellent roads and means of carriage. The Aran Islands and Mutton Island should also be lighted with gas; and we call the attention of the members of the great steamship and other companies of Liverpool and Glasgow to this matter, which should be one of the greatest interest to them. The Irish Lights Commissioners, however willing, are powerless to move, and the Board of Trade won't move till the pressure of the great shipping influences are brought to bear on it, as after twenty years at Galley-head, County Cork. It is lamentable to see fine old oil lights converted into wretched exhibitions of mineral oil, to please a false economy. It is true that the French and Scotch use it, but if so, it is with either Farquhar or Doty burners, and not with the things copied from the Trinity House of London, as poor in workmanship as they are unmechanical in design. Some years ago the Irish burners were the best in the world, but that day has gone by!

**THE NEW LAW COURTS, LONDON**—In its "Notes on Current Events," our contemporary, the *British Architect*, has the following:—"The *Daily News* of Tuesday, in a leading article on the New Law Courts, speaks thus cheerily of Mr. Street's work:—"So far it must be admitted the effect is disappointing. The side of the building to Bell Yard is not striking, unless it be for its ugliness; and the tower at the corner will always suggest a curious combination of a church and chimney stack. The front to the Strand is, however, very satisfactory as a piece of street architecture; though it inevitably suggests in the dark atmosphere of modern London the windows which were ample in early English times must now prove sadly deficient of light." One hardly knows in which pose the writer of this criticism is most to be admired, whether in his disappointment in Bell Yard, or in his satisfaction as he gazes at the Strand front. Criticisms of this kind do no good any way. We hold no brief for Mr. Street, who is ever well able to take care of himself, but we protest against the practice some of our daily papers indulge in, of throwing certain words against the productions of modern architects without venturing to give one word of reason for what often turns out to be the merest exuberance of windbag. To say this is ugly or that is satisfactory are mere assertions that may or may not be founded on true observation. Why is the one bad and the other good? Put it as briefly as you please, but be good enough to vouchsafe us some reason for your judgment." The two succeeding "Notes" are worth extracting:—"Mr. Hermann Linde made his bow before an English audience last

Wednesday, and recited Macbeth. He has an accent, and enunciates in the German style, but has power. The fourth act was omitted—no time. This was a pity. We should like to have heard the witches again. In the first act they were very good." And—"We hear that 9,000 works have been sent to the Royal Academy. Of the oil paintings 182 have been definitely accepted, 900 being received as doubtfuls. Assuming the average number of R.A. and A.R.A. exhibitors to be 150, and taking the fact that only about 1,000 works in oil can be hung, it will be seen at once that out of the 900 works accepted as doubtful, 232 or about one quarter must ultimately be definitely rejected."

### TO CORRESPONDENTS.

**"SMOCK-ALLEY."**—The site of the old historic Smock-alley Theatre was about the spot where the present Roman Catholic Church of SS. Michael and John stands, Exchange-street. Shortly after Daly, the manager of Crow-street, restricted the performances of his company to the latter theatre, the Smock-alley house ceased to be used. About 1790 it was converted into a warehouse. The building soon fell into decay, and in 1815 the Church of SS. Michael and John was erected. There are old citizens still in our midst who call Exchange-street "Smokey-alley."

**MOORE'S SCHOOLMASTER**—The first schoolmaster of Thomas Moore was, we believe, a classical teacher named Malone, to whose school the poet went for a short period; but his principal tutor was Samuel Whyte, under whom his character was moulded. In the sketch of Thomas Moore in the May number of Cassell's Magazine the writer has committed some odd mistakes.

**J. B. C.**—We would like to see the document first before pronouncing an opinion.

**B. A. (Belfast).**—Shall be attended to.

**AN ARCHITECT (London).**—We have already given a view of the building in one of our back volumes.

**NATIONAL MSS. FACSIMILES**—We stated in our issue of 1st ult. that the third part was approaching completion. On reference our correspondent will find some brief details of the documents comprised in Mr. J. T. Gilbert's volumes.

**RECEIVED.**—W. C.—J. S.—R. D. S.—An Antiquary—A. R. A.—A Lady—C. E. (Westminster)—A Workman—H. R. (not quite suitable)—M. D.—P. P.—Technica—C. D.—J. M.—R. E. (Cork)—S. R.—W. T. H. (Lisburn)—S. H. (Cork), &c.

### NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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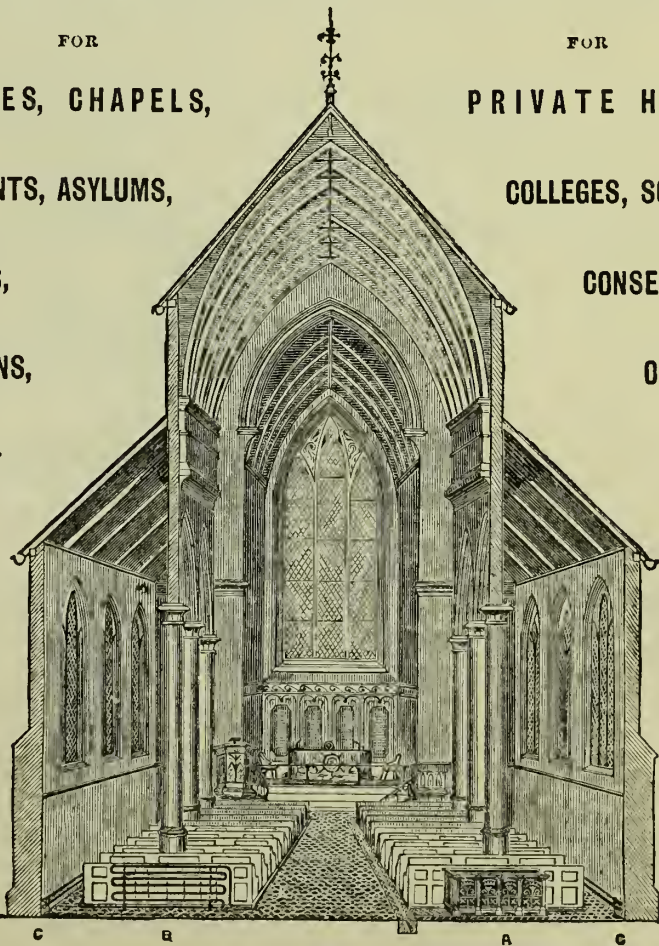
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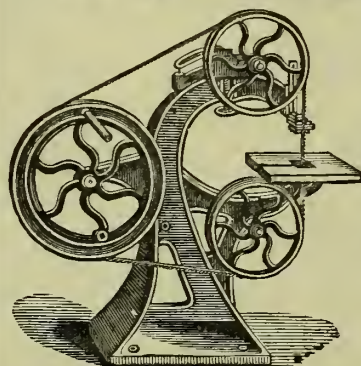
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Illustration.

SKETCH OF LINCOLN CATHEDRAL FROM THE CLOISTERS.

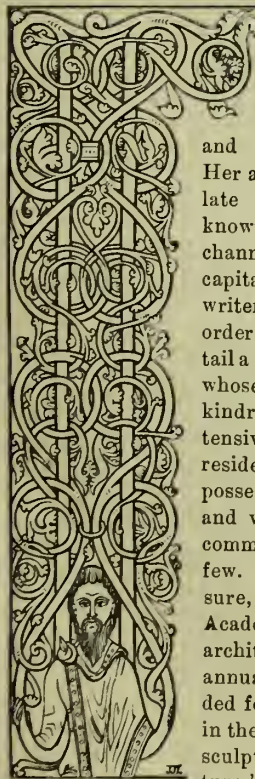
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THE IRISH BUILDER.

VOL. XXI.—No. 466.

NATIONAL ARCHITECTURAL REPRESENTATION AND OPINION.



IRELAND boasts still, as she did in the past, of a number of representative literary and professional men. Her authors, however, of late years are better known through London channels than in her own capital, if we except a few writers of the journalistic order whose labours entail a home residence, and whose circle of friends of kindred tastes is not extensive. The artists resident in Ireland who possess superior talent, and whose position is a commanding one, are but few. They have, to be sure, a representative Academy, founded by an architect, and there are annual exhibitions intended for successful works in the fields of "painting, sculpture, and architecture." The former field

is often fairly represented by exhibits, though the artists are to a great extent non-resident. Of the sculptors we need scarcely speak, for in Ireland at the present hour, though we have a few representatives of the art, their exhibits in the halls of the Hibernian Academy are nowhere. Architecture, one would suppose, would be decently represented in an institution founded by an architect, if not

only in honour of the noble and generous founder, but for the credit of the profession. Alas! though there are architects and even chemists and medical men on the council, and other honorary associates, architecture is voiceless and almost unrepresentative as regards exhibits in the halls of Lower Abbey-street. Of what are our Irish architects dreaming, who have a reputation to sustain and a profession to honour—and more particularly we would interrogate the architects of this city? Is there any spark of true national honour or professional or public spirit existing? Why so much chronic somnolence and stark-naked and humiliating indifference? Are honours abroad yearned for, and certain initials hungered for, by those who despise their brethren at home, and are doing their best, though perhaps blindly in some instances, to emasculate the little remaining energy and life that remain in connection with native institutions?

We look to London, and we are glad to see a representative Institute growing stronger yearly, and architects in honest rivalry bidding fair in the future to row abreast with their engineering brethren, who in previous years had forged far ahead of them by brotherly feeling and industry. Side by side in the same capital we see architectural associations doing good work, and adding in no small degree to the prestige of the central body by painstaking and conscientious labour. We look to Glasgow, Liverpool, Manchester, and other large cities and towns, and we see kindred local architectural societies working harmoniously, and doing valuable service for the good of the profession. In looking to or through Dublin, what do we behold? We discern a myth where we should find a reality, a semblance where we should find a body, and a stillness where there should be an echo!

Who stands in the way? Who are they who have undertaken work that they either are unable or unwilling to perform? By whose concurrence is the delusion kept up? and for what particular ends and aims is the fleshless skeleton still kept upon the dissecting table? Architects of Dublin, we must speak plainly. You are or you are not deceiving the British public! You have or you have not a representative Institute! If you have, speak out, and show the public the results of your last three or four years' proceedings; but if you have only a mythical existence, be honest, and for the credit of your profession declare the facts boldly, that immediate steps may be taken by other men to wipe out the shame!

We have in our midst an Irish Civil Engineers' Institution, which holds its usual sessions, and whose proceedings are representative by several excellent papers, which we have published from time to time. We have an Irish Geological Society, which also does useful labour, and several excellent papers have been read by some of its members. We have historical and statistical societies, which meet at an appointed time, and their proceedings show that they live and are not inactive. We have several other societies, too, not forgetting our old native institutions, the Royal Dublin Society and the Royal Irish Academy, who in their particular fields have and are manifesting considerable industry in the interest of the sciences and the arts. Nor should we omit, that for many years we have had an Archaeological Association, though latterly not as active as

formerly, yet much excellent and valuable labour has been performed by its members, and through the influence of the society. What say the conscientious members of the invisible or long-sleeping "Royal Institute of the Architects of Ireland" to the above evidence concerning existing institutions in their midst? Will our Dublin architects put in a plea of poverty? Will they say they mistrust each other? Will even one out of every dozen show the public that he has the courage of his opinions by unobscuring himself. We said on a former occasion that the architect in fair practice who would not pay his subscription regularly for the support of his own native or local society would not pay it to the central body. We have not the least objection to offer the Irish architects joining the British Institute,—indeed we think many of them would do well by enrolling their names. We do contend, however, that the architects of the Irish capital who still amusingly sign their names with the initials of the Irish Institute membership should be both conscious and consistent. If members continue to ignore the existence of an Institute supposed to live in their midst, they should certainly cease to append initials that represent nothing, save perhaps a defunct body—a very shadowy honour.

It may be thought unkind on our part to dispel illusions, and with a whiff urgently called for on the part of somebody, blow into nothingness a soap balloon as airy as any castle in the air could well be. This is an utilitarian age—at least some would-be practical professionals are always telling us so, and they must not be pained if we accept their dictum and apply it. We need something tangible, something with mind and muscle, sinew and bone, a body with a motive or moving power, and a speaking voice. We have no architectural body in Dublin of this kind at present, and to clear the way for its creation is one of our objects. Exactly fifty years ago the first Irish architectural institute was founded, which continued to exist for some years, counting amongst its members several able and representative architects. It did good work for a few years, some excellent papers were read by veteran architects in its rooms, but the grave has long closed over them, though their works still attest their professional ability. Morrison alone was a host in himself, but the veteran Sir Richard, a patron of Irish arts and artists, is sleeping for the last forty years 'neath the turf of Mount Jerome, and his still more talented son William Vitruvius predeceased his parent, and a short time previous to the founding of the first institute. The proceedings of the first body can still be referred to in their "Transactions," or the files of the newspapers of the day, and our young Dublin architects can reckon up the old names and compare them with our present architects for a contrast. Certainly they may find among the old list the names of men who have commenced their career as builders, but they were self-made men, men of energy and industry and talent to boot. The old condition of things has happily changed in some respects, and for the better, and if only our architects would do their duty, the Irish profession could be well represented in a short time. In the latter end of the eighteenth and in the earlier years of the present century, several prosperous English architects, as well as Irish ones, commenced life as builders, and continued



for long years as contractors also in connection with public works. The builder and architect were united—aye and, what was more to the purpose, the engineer and architect. Times are changed; and connected with the practice of architecture, men follow distinctive callings. The civil engineer has a special field, and so has the surveyor; and modern wants connected with social progress and public health have led to the uprise of other distinct callings allied to architecture—municipal surveyors and sanitary engineers. The circle is widening in every direction, and new pursuits continually cropping up, enlisting special talents and services.

Is architecture the only profession in Ireland, we would ask, that is to remain somnolent and laggard? Are there no architects in our midst with sufficient courage and self-denial to step forward and do a little weekly or monthly voluntary labour for their own credit's sake and that of their order? Is there nothing that can be done from within to move the inert mass of dogged sluggishness and selfishness that will not do what is right or let others do it, by submitting to have itself decently removed out of the way? In domestic life one would find their next door or opposite neighbours striving courageously to keep their credit up. One neighbour will compete with another, for even the keeping up of a family's "consequences" leads to a certain struggle and proud feeling. So long as this is done honestly and to the loss of no one, it is to be commended; but we pity the family or the profession that takes no pride in its well-being. The humblest regular trade or craft in the three kingdoms has a representative society of some kind—a real organisation and not a mythical one, and if shame could move some people into action the shame should be particularly strong at present to manifest itself. There are a few architects in our midst whom we know would cheerfully do what they feel they are called upon to do, if others of their better off but indifferent brethren would show any real energy or interest. The Alpha and Omega of the whole matter is stagnation, utter and real, a number of architects representing no one but their individual selves, outwardly pluming themselves they are members of a Royal Institute of Architects, and fondly believing that the British public cherish the same delusion as themselves. We have over and over appealed to the pride, the spirit, the dignity, the common sense of the members of the profession; we have published a journal to represent them—to advocate their grievances and defend them from the onslaughts of numerous anonymous amateurs and scribblers in the daily Press; but each day we have lived to witness greater sterility and barrenness on the part of the architectural profession in this city. These are true and undeniable statements, and we leave it to the conscience of our architects to reconcile their conduct with the status which their profession is supposed to give them,—whether they are worthy of their honourable profession, or whether the honour of their native land is antagonistic to professional practice in the Irish capital.

**MOORE MEMORABILIA.**—The Centenary of Thomas Moore has led to several publications and revised editions of the poet. Some have already appeared, and others are preparing for publication. The little pamphlet "Juvenilia," from the office of this journal, was the first published essay in relation to the Centenary of the poet, and it appears to have suggested and led the way to others.

### THE FORTHCOMING NATIONAL CELEBRATION.

As the Centenary celebration of our national poet will be held before we have an opportunity of again addressing a word on the subject to our readers, we will avail ourselves of the opportunity to say a few more words anent the forthcoming event. We sincerely hope that our countrymen will rally round the committee, and by practical sympathy enable them to make the Centenary celebration a decided success. Hero in the native city of Moore there should be no need for urging our citizens to do their duty on such an exceptional occasion as will in a few days present itself. At the risk of being thought egotistic, we will here quote what we wrote in these pages as far back as September 1st, 1871, nearly eight years ago:—"Thomas Moore is a name that would occur to many in this island as one that might be fittingly honoured by a Centenary celebration, but we shall have to wait until 1879 before such a celebration could take place. Moore is certainly our national bard—a name as dear to us as that of Shakespeare to England, or Scott or Burns to Scotland. There is no one, be he a native of where he may, or no matter what may be his religion, could object to pay his homage to Thomas Moore. His genius was universal, his melodies could touch and soften the most obdurate heart; and, let the traveller go where he will in either hemisphere, snatches of the songs and strains of the music of Moore will fall upon his ears, waken up his home recollections, and send a thrill through his soul so exquisite that language must fail to describe it. Yes, Thomas Moore deserves a Centenary celebration, and no difficulty will exist when the hour arrives for honouring him." And again, and apart from political grounds, we on the same occasion further observed:—"We trust that no narrow-minded prejudice will obstruct the way, and that our suggestions will be responded to in due time. If we are the first in the field to project a Centenary of O'Connell or Moore, we wish to claim no honour for the suggestion, nor to seek notoriety, should it ever happen to be carried out. Life is short, and even in four years or in one-fourth of that time the hand that pen these words may be nerveless and cold, but it will be satisfaction for our readers and countrymen who are alive to know that our objects were honest and that we meant well. Oh, how many noble enterprises have not fallen through in this ill-fated land through want of an amicable and kindly spirit! That wayward fate of which our national poet has sung has been our bane for centuries. If we would turn the tide in our favour, we must be more considerate of each others' faults and failures, and more conservative of our national honour and character. This we can do by showing kindness and reciprocity at the same time to outsiders. Having said so much by way of counsel, we will now leave our suggestion in the hands of the public to utilize it in the future to the best advantage," &c.

As we believed years ago we believe still, and, irrespective of sect or party, and with the union of all classes of our countrymen, we hope to see Thomas Moore worthily honoured in Dublin.

Life has been spared to us, and we are likely to witness the second of the Centenary celebrations that suggested our remarks of nigh eight years since. Without taking any

active public part in either movement, we have endeavoured to assist in the realization of both celebrations as Irishmen and citizens of the same city which gave birth to Moore, and for the honour and interests of which we have for years silently and ungrudgingly laboured.

REMEMBER THE 28TH OF MAY.

### COFFEE BARS, "PUBS."—THE SOCIAL NEEDS OF WORKMEN.

THE old-fashioned "pubs." with their bar parlours, pew-like sittings, and big fires (in winter), are almost extinct, save in country places. The gin palaces or dram counters, with no "sit-down," have superseded the former, to the great profit of the publican. The workman's ease is not studied in these days by our vintners, save it is the easement of his pocket of some if not all of its sparero money. A coffee bar movement is making headway in London. On Saturday Lord Cairns, in company with Mr. Cross, Home Secretary, Sir Selwin Ibbetson, and many other persons of distinction, presided at the opening of the Belgrave Coffee Bar, Buckingham Palace-road. The Lord Chancellor delivered an address, earnestly advocating the scheme for supplying London and the large towns with many such places of refreshment and recreation for working men. We give an extract from his lordship's opening remarks as to the social needs of workmen:—"The principle, as I understand it, upon which these institutions are founded is this: The working man, after he is done with his work requires to have, what I am sorry to say he can seldom get in his own home—a comfortable room with good light and heat, where he can find his friends, where he can perhaps smoke a pipe, and where he can have a newspaper if he wishes to read it. Now there is one place where he can always get all these requisites to his hand. He can find them at all times in the public house; but then he can have them there upon these terms, and these terms only, that he will assist in the consumption of the liquors that the public-house affords. If he and his friends will assist in that work they will have a hearty and continual welcome; but if they will not consume the liquors sold there they will not long be welcome, and they will find that those luxuries I have referred to are no longer at their disposal. The object of a place of this kind is to give to the working man all those comforts he would have had at the public-house, and to give them to him without the penalty of having to consume that which the public-house sells. I believe it to be a fact that there are many working men who have been led into the habits of intoxication not because they originally had any desire, wish, or fancy for drinking intoxicating drinks, but because they found that in the public-house they could not have a standing place or a sitting place unless they drank some of the products of the establishment. Now I am happy to think that the experience of the last few years has established beyond all doubt that there is no difficulty whatever in a coffee palace or coffee bar being made a success financially. Those who have looked into the working of places of this kind have found and know by experience that, provided they are properly managed, they will, once they are fairly started, be perfectly well able to take care of themselves.

The Home Secretary heartily agreed with the Lord Chancellor in the advice he had given as to the management of these institutions, and particularly in regard to making them a commercial success if they were to succeed at all. He also rightly observed that if these establishments were made a matter of charity instead of business they would do harm instead of good to those they wanted to benefit, and who would not thank them for it in the least; and further, if they



made it a commercial success they would, besides succeeding themselves to the best of their wishes, induce others to follow their example. They could not hope to get rid of the great mass of intemperance and consequent vice which unfortunately existed in England at the present time by means of any Act of Parliament. Sumptuary laws had been tried over and over again, and had always failed. He was happy, however to bear testimony to the undoubted fact that there was growing up gradually, if not rapidly, amongst the working men in the North of England, to which he had the honour to belong, a strong feeling that they ought to do all they could to put down this vice of intemperance, and a great number of them would have no association with those who were addicted to this vice. Harsh language was sometimes used regarding persons in the lower classes in the habit of getting drunk, but the surroundings of these persons ought to be borne in mind—their wretched homes, their absolute want of education, and the vice and poverty to which they had been accustomed from their childhood. When all that was being done for education and for improving the homes of the working class was considered, they might look forward to the future generation with great hope that, by the assistance of those who worked with and like the promoters of this coffee bar, there would be great improvement in regard to what had been called our national vice.

Sir H. Selwin Ibbetson, in the course of his address, said there was nothing so striking in the present day as the awakened interest in the welfare of the labouring classes. While entirely agreeing with what Mr. Cross had said about paternal legislation not being the successful way of dealing with the habits of this class, still he held that such efforts as were now being made in this direction were legitimate levers for raising the standard of habit and feeling amongst them. When he considered that last year's records showed that there had been 153,000 convictions for drunkenness in the country, and remembered the waste and suffering this implied, he was of opinion that institutions of this kind spread over the country, with all the advantages and none of the disadvantages of the public-house, would do more good than any Acts of Parliament passed in the vain endeavour to legislate for the abatement of this great evil of drunkenness. Without interfering with the legitimate use of the public-house, they might take from it men who could not resist its temptations. He endorsed all that had been said about making these institutions a commercial success.

Some of our so-called coffee restaurants in Dublin might advantageously take a hint from those in London, where there is cleanliness as well as comfort, and goodness as well as cheapness in the articles supplied to visitors and customers. Of this newly-opened coffee bar, in London, we are told that the institution is most conveniently situated. The house has a look of cheerful snugness about it, and all its arrangements are admirably adapted to its purpose. Its bill of fare is suited to slender purses, but everything is of the best quality, clean, and well-served. A reading-room, smoking-room, library, and lavatory are to be found in the house, as well as the bar, and the whole affair begins so promisingly that there is every prospect of a successful career to gladden the heart of its principal promoter, Canon Fleming.

Some of the common coffee houses in London, as well as Dublin, and, indeed, in all our large towns and cities are not very enticing places to enter, nor is the food or service given agreeable to mind or body. The gin palace, heretofore, has been attractive by the means of paint, gold-leaf tinfoil, polished marble counters, mirrors, and figured glass panels. The coffee bar promoters are decidedly on the right track in London, and Mr. "Pub" had better look to his laurels. Drink, no doubt, is *strong*, but

comfort with common sense and good health is strange, and there can be no doubt as to which will ultimately triumph.

### STREET CARRIAGEWAY PAVEMENTS.\*

WITH respect to the figure of stone sets, the author explained that in order to secure stability their depth should be greater than any other dimension; but that the length should be greater than the width in order to facilitate breaking joint. His conclusions might be thus summarised:—Hard stone, in which joints were unnecessary for foothold.

	Depth.	Width.	Length.
	In. In.	Sets. In.	In. In.
Sets for moderate traffic	6 to 6½	4 to 14	5 to 7
Sets for heaviest traffic	7, 7½	4, 14	5, 7

Softer stones, in which joints were unnecessary for foothold.

	Depth.	Width.	Length.
	In. In.	Sets. In.	In. In.
Sets for light traffic or inclines	6 to 6½	3 to 14	5 to 7

A crucial examination of many classes of pavements had satisfied the author, in 1871, that those jointed with asphalt retained their figures better, and wore out less rapidly, than any others. This method of jointing, however, was often very indifferently performed. Since that date all the Liverpool pavements had been jointed in this manner with great advantage; and all those subject to heavy traffic had been constructed with Portland cement or bituminous concrete foundations. The mode of constructing the foundations and pavements differed in some important respects from that generally adopted, and was fully explained. The Portland cement concrete was mostly prepared in a yard, and not in the street where the work was going on; and the author had proved, by a large number of conclusive experiments, that no loss of strength, but probably a slight gain, arose from allowing such time as was occupied in cartage to elapse between mixing and placing *in situ*. Carriageways of bituminous concrete, or asphalt macadam, were next described. The smaller stones used for the upper layer of such pavements should not be much harder than the asphalt itself. A large area of this pavement had been constructed in Liverpool, and on sanitary grounds the system would probably be extended over many back streets. After describing his experience of wood pavements in Liverpool, the author drew the conclusions that, like stone pavements, they should be provided with concrete foundations, the joints should be very close, and the blocks should be creosoted.

Much difference of opinion existed as to the best mode of finishing or blinding the surface of macadamised pavements. Under a 15-ton steam roller, preceded by a watering cart, 1,200 yards of trap-rock macadam, without blinding, could only be moderately consolidated by twenty-seven hours' continuous rolling. If blinded with trap-rock chippings from a stone breaker, the same area might be moderately consolidated by the same roller in eighteen hours. If blinded with silicious gravel from ¾ in. to the size of a pin's head, mixed with about one-fourth part of macadam sweepings obtained in wet weather, the area might be thoroughly consolidated in nine hours. Macadam laid according to the last method wore better than that laid by the second, and that laid by the second much better than that laid by the first.

In order to compare the wear of different classes of pavements, the author had reduced the traffic to tons per annum per yard width of the carriageway.

From inquiries made with reference to the loads drawn by horses since the new Liverpool pavements were constructed, as compared with the loads drawn on the old pavements, and without giving credit for the great reduction of wear and tear of horses and vehicles, the author estimated that there

was a saving in the cost of cartage alone exceeding £10,000 a year for every mile of such pavement as now laid in the Dock line of streets in Liverpool.

Of all pavements for street carriageways macadam appeared to the author to be the least satisfactory. It was the most costly, the dirtiest, and, on the average of all kinds of weather and all conditions of repair, probably involved a greater traction for a given load than any of the other systems when thoroughly well laid. Its dirtiness consisted not only in the excessive mud of wet weather and the excessive and impure dust of dry weather, but also in the facility with which organic impurities were absorbed by it, decomposed within it, and exhaled to the atmosphere. In country roads this objection was insignificant, and no other pavement was better than well maintained macadam; but in some of the carriageways of the west end of London one would regard it as intolerable, had it not been tolerated so long. To the unsophisticated provincial the manner in which, on a hot July day, fashionable London rolled over her tainted macadam pavements, apparently without even smelling them, was a mystery almost as great as surrounded the fact that the metropolis, alone among the great centres of civilisation in this country and in the world, still submitted with apparent satisfaction to an intermittent water supply, impure at times in almost every household, however pure the source of that supply might be, when with absolute pecuniary benefit a constant supply might be obtained.

### LAW.

#### A MODEL-BUILDER AND HIS FEE.

CIVIL BILL COURT, May 6th.

*Donnelly v. O'Reilly*.—This was a process to recover seven guineas for work and labour. Plaintiff, Mr. James Donnelly, is a builder residing in Temple-street, and defendant, Mr. Terence O'Reilly, solicitor, of North Great George's-street. The amount was claimed under a written guarantee signed by Mr. O'Reilly, by which he promised to pay Mr. Donnelly seven guineas for a report and model, on condition of his "attending and giving evidence" in a case of *Hickey v. O'Reilly*, to which the report and model referred, and in which Mr. O'Reilly was engaged as solicitor for Hickey. Mr. Donnelly proved the guarantee, and that he was present in court during the hearing of the case of *Hickey v. O'Reilly*. On cross-examination Mr. Donnelly said he did not give evidence in the case—he was not called on; he was not in court until the plaintiff's case closed. The judge would not then allow him to be examined. Mr. O'Reilly was examined, and swore that Mr. Donnelly did not attend in the case of *Hickey v. O'Reilly* until the plaintiff's case had closed. An adjournment was then allowed by the court for a view jury, and Mr. O'Reilly himself went in a cab in search of Mr. Donnelly, on whose evidence the case largely depended. He met Mr. Donnelly in Sackville-street, and asked him to return to court. This Mr. Donnelly refused to do unless he got a written guarantee. When he got the guarantee Mr. Donnelly put it in his pocket, and refused to accompany Mr. O'Reilly to the court, though the latter represented to him that he would be late if he delayed. Mr. Donnelly arrived after the case for the plaintiff had closed, and counsel had opened the case for the defendant, commenting on his absence. Judge Fitzgerald, who tried the case, said he would not allow Mr. Donnelly to play "fast and loose with the court," and refused to allow him to be examined at that stage of the case. Mr. Donnelly had already received two guineas for his report in the case and two guineas for his model, which was principally composed of brown paper.

The Recorder—Some people are entirely too clever! I dismiss this case with costs.

\* By Mr. G. F. Deacon, M. Inst. C.E. Read at Institution of Civil Engineers, London, on the 29th ult.



## THE HEATING AND VENTILATION OF DR. JOHN HALL'S CHURCH, NEW YORK.\*

PROBABLY in no church edifice in the country has so much attention been given to secure perfect heating and ventilation as in the one named above. The attending success has been so complete that nothing seems to have been left to be desired. As the building, its dimensions and architectural attractions are so well known, it is unnecessary to describe them; but we doubt if many of the thousands who have visited the sacred edifice and enjoyed the perfect comfort secured only by a complete system of ventilation and regulation of the temperature have any idea of the means by which that comfort is attained.

The heating apparatus is supplied with steam from two horizontal under-fired tubular boilers, 48-in. diameter, 16 ft. long. The valves are set at 50 lbs., though 15 to 25 lbs. pressure are required in the coldest weather, consuming from 80 to 100 tons of coal per year. The basement extends beneath the entire building, and is about 9 ft. from the concrete floor to the under side of beams, which are neither ceiled nor plastered, but left exposed to view. That portion of the basement beneath the auditorium and the lecture-room really constitute two great hot-air chambers, as the steam is conveyed from the boilers through lines of 2-in. pipe, and secured to the under side of the floor beams above. Openings are cut or left in the floors of the auditorium and lecture-room, immediately beneath the foot-benches of the pews. These foot-benches have sections of their risers hung, or rather pivoted, a section to each sitting in the several pews, that can be opened or closed by the occupants of the pews, thus regulating the inflow of heat to their comfort. The heat also finds ingress through small round apertures in the ends of each pew, just above the floor, on each side of the aisles. This heat also comes from beneath the foot-benches, the risers and treads of which, with the pew partitions and ends, forming nothing more or less than boxes or flues for the reception and distribution of the heat generated by the steam pipes beneath. The Sunday-school is located immediately above the lecture-room—an arrangement which struck the writer as objectionable if both apartments be used at the same time.

For ventilation purposes, fresh air is drawn down to the basement from the small tower placed at the north-west angle of the building, whose louvered sides can be seen by persons passing along Fifty-six-street or Fifth-avenue, by looking through the openings between the buildings on those streets. A steam-driven fan, 7 ft. in diameter, placed near the foot of this tower in the basement, draws the fresh air down the tower and forces it into the wide and hopper-like mouth of the duct, which, with its various branches, conveys it to all parts of the edifice. At first this fresh air was distributed just as it was brought into the building, but was found unsatisfactory—if not too fresh, at least too cold. To obviate this difficulty, three stacks can be supplied with steam, and the fresh air either just-tempered or well warmed, as may be desired. So much of this as may be required for the basement is taken directly from the main duct, while branch ducts run to the side walls, whence flues and pipes convey it to the Sunday-school, lecture-room, and other apartments of the building. Two 30-in. pipes are used to convey the fresh air to the ceiling of the auditorium. The two ducts to the pulpit are supplied with cold air with a register in the floor at either side of the speaker. For summer use the fresh air is cooled by a spray of water from a 1-inch perforated pipe running around the bottom of the tower, about 7 ft. above the floor. This water is supplied from two rain-water tanks, of 3,000 gallons each, placed in the main tower on Fifth-avenue about 120 ft. above the sidewalk. The water is pumped from the large cistern beneath the basement

to the tower tanks, and pipes are run from the tanks to various parts of the building for use in case of fire. The ceiling sash of coloured glass above the auditorium is hung in sections, and with pulleys can be raised as required to prevent the escape of the vitiated air to the open space above the ceiling. Into this space the Sunday school is also ventilated through a shaft over an adjoining cloak and wash room. The auditorium windows have double sashes, which act as ventilating ducts, receiving the vitiated air through registers placed in wainscoting below the window sills, and conveying it to an open space above the ceiling. An opening, a low doorway, from this space over auditorium ceiling allows the heated and vitiated air to escape through the small tower with an open iron-framed top, and placed at the north-east angle of the building.

## A VALUABLE AND SUGGESTIVE COLLECTION.

A GENTLEMAN of the name of Snoxell died last month at the advanced age of 83. Within a certain circle he was well known as a collector of curiosities, and at his house in Charterhouse-square, London, he had formed a kind of museum which was worth seeing, from the varied nature of the articles and objects he had brought together during a long life. As we write, the late Mr. Snoxell's collection of curiosities is announced for sale by Messrs. Puttick and Simpson. Among numerous other objects, the catalogue names clocks, singing birds, automata, &c., upwards of 500 valuable miniatures, about 80 large paintings, chiefly subjects connected with music. Connected with the latter class there are some objects which are sure to attract attention on the part of the admirers of Handel, at home and abroad. Before the issue of the catalogue we were aware that Mr. Snoxell prided himself on possessing Handel's watch and his original will, but in addition the public are now told there is a portrait of the great composer by Woolfand, and the anvil and hammer used by Handel in composing the "Harmonious Blacksmith." There are also in the collection rare prints relating to remarkable places, subjects, incidents, events, characters, &c.; autograph letters and MSS. of Johnson, Burus, Evelyn, &c.; medals, bronzes, musical instruments; the library of standard works, and a variety of other objects. The relics of Handel will no doubt lead to heavy bidding, and if they are *bonâ-fide* it is not unlikely they will be secured by the British Museum.

## A HEAVY, BUT JUST, SURCHARGE—A CAUTION TO CORPORATIONS.

THE Metropolitan Board of Works, London, has been very extravagant of late years in voting public moneys in the promotion of bills and schemes that were never carried out, though it must be said, in some instances, the obstacles were too great for the Board to overcome in a first effort. The schemes, however, of the Board have been numerous, and the expenditure for professional service and parliamentary costs enormous. The Board, like others nearer home, is always promoting some scheme or other at the cost of the ratepayers. On Monday last the ratepayers of the metropolis scored a triumph upon the occasion of the annual audit of the accounts for the past year, and an exciting scene was witnessed. Mr. W. Tucker, the auditor appointed by the Lords Commissioners of the Treasury, attended for the purpose, and Sir J. M'Garel Hogg, M.P., the chairman, and several members of the board were present. Upon reaching an item of over £16,000 charged in the accounts as expenses incurred in the promotion of the bills introduced into Parliament by the Board last session for the better supply of water to the metropolis, the auditor announced that he had received several notices of objection to the payment of such accounts, and that he had been called upon to surcharge the

Board for such expenditure. When the notices for these bills were given in Parliament the vestry of St. Pancras led an opposition, which was taken up by several other vestries and district boards of the metropolis, and the project met with considerable opposition in the Metropolitan Board itself. The auditor ruled that he could pay no attention to these combined oppositionists, but the objectors must appear before him as individual ratepayers, and state their objections. Upon this one or two of the strong opponents in the board, backed by several ratepayers, were heard upon their objections, which were combated, and defended by prominent members of the Board who contended that the board had a right to make this expenditure for the benefit of the ratepayers in securing an adequate supply of water which they had not at present. The auditor took a different view, and contended that what the Board ought to have done would have been to have procured the resolution of Parliament, which would have cost nothing. He held the expenditure to be illegal, and surcharge the board the £16,000. It is understood there is no appeal against this decision.

## APPOINTMENT OF CITY ARCHITECT.

At the monthly meeting of the Corporation on Monday, Alderman Gregg moved the adoption of a report of a committee of the whole house recommending the appointment of a city architect, at a salary of £500 a-year until it reaches £600. There was, he thought, much necessity for the appointment of an officer whose duty it would be to superintend all buildings in the city. A good deal of corporate property would shortly be falling out of lease, and there would be rebuilding and other works necessary which would require the supervision of an architect.

Mr. A. O'Neill seconded the motion.

A discussion took place as to the definition of the duties of the new officer.

Mr. Shackleton proposed as an amendment that the report be referred back to the committee for further particulars as to the duties of the officer.

Mr. Murphy seconded the amendment, which was rejected on a division of 20 votes to 8.

Alderman Harris moved that the appointment be for one year only, at £500.

Mr. Shackleton seconded the amendment, which, on a division, was adopted by 15 votes to 13.

["Jerry" builders, look out for the coming C. A. !!]

## NOTES OF WORKS.

Extensive works are at present being carried out at St. Canice's Cathedral, Kilkenny, comprising the stripping of the greater portion of the roof, laying felt on the sheeting, and re-slating; laying the stone gutters of nave, transepts, and choir with lead, and pointing the parapets of same. The cost will exceed £500. Mr. W. K. Cleere, of Kilkenny, is the contractor.

The works of enlarging and improving the church of Kiltannel, in the Earl of Courtown's demesne, near Gorey, are nearly completed, but further works are now contemplated. Mr. B. W. Webster, of Gorey, is the contractor.

Improvements are being effected at Fethard Church, County Waterford, consisting of new east, west, and chancel (side) windows in the decorated style, and new floors and fittings. Mr. William Rochford, of Carrig-Baunow, is the contractor.

The above works are being carried out under the superintendence of Mr. Richard Langrishe, Diocesan Architect, Kilkenny.

BRIGHTON.—It is stated that empty houses at Brighton at the present time represent a rental of £12,000 per annum, and a dormant capital of about half a million of pounds sterling!

\* From the Plumber and Sanitary Engineer for May.



# TECHNICAL EDUCATION. ONLY A COMPOSITOR.\*

SUNDAY is a quiet day in London; and, having left the church at Chelsea at one o'clock, I caught the "bus" at Cheyne-walk, and was set down at Hyde Park Corner. As some hours should elapse before I could dine at the Regent's Circus, I strolled into the park, and found a seat beside the Serpentine, at the further end of which sat a young man seemingly absorbed by the pages of a newspaper, the *Echo*. After a time he looked up, and his eye caught mine; I said: "What a beautiful day!" and, as we say in Ireland, "one word borrowed another," and led to a conversation on various matters, in course of which I discovered he was a compositor,—a trade that I have ever taken an interest in. I thought I could discern that there was some dissatisfaction pervading his mind, and in giving me his opinion on several subjects he generally ended by remarking that he was "only a compositor." "My dear sir," said I, "may I ask what you mean by 'only a compositor'? Few trades are more respectable or more fitting, if educated, to lead to worldly prosperity, I will not say wealth, but to position and income, beyond what can be expected by the generality of tradesmen; and, if my doing so will not detain you too long, I will relate some little biographical anecdotes of men with whom I have been personally acquainted, and who all served their apprenticeship as mere compositors." He replied that, having had his dinner, he was out for a mouthful of fresh air, and would be much obliged to me for my reminiscences.

"Well, then," said I, "a near relative shall be my first example. He was apprenticed at the usual age in a newspaper office, and, having received a fair education, was often taken from his case to do duty as reader. About two years before the expiration of his indentures, he heard of Pitman's system of stenography, and determined to succeed in acquiring it. Every day for half an hour his mother read for him a portion of Scripture, which he took down in shorthand, and then wrote it out in longhand. This lasted for two years with scarcely a break in its regularity, and at the end of that time he had conquered so far as to be able to write ninety words a minute,—quite sufficient for all ordinary reporting; and I need hardly explain to you the labour and practice required to increase these 90 to 120; but still he persevered, and had the good fortune, when out of his time, to be admitted to the reporting staff of a daily paper just then commencing publication. His rise, through perseverance, was rapid; and, no doubt, in all human probability he would now be in a good and lucrative position if he had not come to an early grave, through fever, caught whilst in the discharge of his duties in the boardroom of a union workhouse.

"My next instance is not extraordinary, beyond the fact of his being self-educated, and rapidly rising in the respect of his employers and fellow-workmen. He is now the proprietor of an extensive establishment, where, in the pursuit of honest industry, aided by probity, punctuality, and steady adherence to business, he is looked upon as a worthy and a respectable citizen.

"My third example is one of those that we seldom meet with; it is, indeed, singular, and an instance of a rise in life not often equalled. He was left an orphan at an early age, and thrown on the care of an aunt, herself a poor widow with the very slenderest means. She sent him to school, from whence he was taken into the printing-office of one of our great firms, where, from the drudgery to which he was necessarily subjected in the early stage of his career, he got a distaste of the trade that never left him; but, young as he was, his mind was fixed on being something above a tradesman; and, when he had completed his servitude, he applied for and got a clerkship in a religious society's office, at twelve shil-

lings a-week—less than half his earnings if he had continued at ease; but some inward monitor pushed him on, and in 1863, at the age of 22, he competed for a supernumerary clerkship under a public board, at seventy pounds per annum. His rise from thence was rapid, always willing to oblige, quick at acquiring official knowledge, and spending all his spare time in reading up blue books, and whatever would assist him in his duties; the year 1867 saw him an assistant secretary, at a salary of £250, and in 1870 secretary with £800, to rise by annual increments to £1,000 a year. This has been wholly the result of education gained by perseverance, study, and self-help, with a reliance on the Almighty, without which all else were vain. And now, at the age of eight-and-thirty, this mere compositor, with a handsome salary, due to his own unaided efforts, pursues the even tenor of his way; and there is no knowing what further prosperity may be in store for so young and so clever a man. His position has enabled him to assist his friends in many ways, and older heads than his amongst our citizens are not above seeking his counsel and advice.

"Another instance I will give you, and he is on the road to a bishopric! When I first became acquainted with him, he was given by the father of the chapel\* some of my manuscript to set up, and from that time I had frequent opportunities of seeing him. The office was one doing a large business with clergymen, and his intellectual superiority rapidly manifested itself, and caused him to be chosen for works of a serious tendency, that brought him into frequent contact with the clerical frequenters of the place, and a knowledge of Greek and Latin did much to advance him in the profession. Being naturally of a studious turn, some little encouragement that he got from a high dignity of the Church induced him to endeavour to read the entrance course for college, and with perseverance, much labour, and self-denial, he at last reached the goal at which he aimed, and was ordained. He is now rector, and much esteemed in his parish."

"These four instances are well known to the proprietor of the IRISH BUILDER—a fact I merely mention as an evidence that I have not drawn on my imagination for fictitious characters. They are all proofs of what can be achieved by technical education. The word 'technical,' as you are probably aware, is derived from the Greek *technikos*, akin to art, and *teko* to bring forth or produce; differing from mere manipulative skill in its relation to art. The technology of a compositor is literature, the technology of a bricklayer is architecture; the physical or manipulative skill acquired by the one with constant practice is the handling of bricks, the setting them in cement, and the observance of the proper allowance for the thickness of his cord in the plumb rule; by the other the rapid and certain grasping of his type or letter and depositing it under his thumb in the stick, the skilful justifying of his work, and the after distribution of his letter in case; but all this without education leaves the one a bricklayer and the other a typesetter. The road is the same to both, as it is to all trades and professions. Some years ago we had a trade dispute between stonecutters and bricklayers, or, as they are improperly called, masons; the stonecutters said, 'having produced the stone block, they should set it;' the masons replied, 'yes, if you know how.' The stonecutters considered themselves what they ought to be if they had education, but without which they were merely stonecutters. There is nothing to prevent a stonecutter being a 'Phidias,' and he, after all, was a stonecutter. Thus it is a compositor with education can rise to any eminence; without it he merely works at literature,—to produce literature in a shape to be grasped by the sense of sight, is the aim of his early physical, manipulative prac-

tice. Look at the tradesman working at a pillar, his skill in the use of the various tools is most admirable, one cannot but be struck with the beautiful results of his efforts; but his ignorance of the most rudimentary instruction in the rules that centuries of experience have laid down for his guidance, leaves the work without that fair proportion so necessary to ensure for it the place in the arena of taste without which it is merely mediocre. In the building trades the want of technical education is most painfully apparent. We hear the most incongruous names given to mouldings, and see the most curious and ruinous combinations of materials. The ignorance of chemistry is strikingly shown in the mixture of colours; vermilion, for instance, being added to red lead to produce scarlet, the result in a short time being a dirty brown, to the disgust not only of the employer but the ignorant producer.

"But I fear I have wearied you, and trust I have said enough to awaken in you a wish for improvement. Should we meet again, although still attached to the 'Press gang,' I may find you more hopeful as to rising in the honourable profession that I would designate 'compositor,' without using the rather lowering adjective 'merely.'"

## GOOD ADVICE TO BUSINESS MEN.

DAVID Ricardo, the English broker, accumulated an immense property. He had what he called his three golden rules in business, the observance of which he always pressed upon his private friends. These were: Never to refuse an option when you can get it; cut short your losses; let your profits run on. By cutting short one's losses, Mr. Ricardo meant that, when a broker had made a purchase of stock, and prices were falling, he ought to sell immediately. And by letting one's profit run on, he meant that when a dealer possessed stock, and the prices were rising, he ought not to sell until prices had reached the highest, and were beginning to fall. A man who had just set up in the hardware business, and who had been a clerk where Girard had traded, applied to him for a share of his patronage. Girard bought of him, and when he brought in the bill, found fault and cut down the prices. "Cask of nails," said he, "which I was offered for so and so, and you have charged so and so, and you must take it off." "I cannot do it," said the young merchant. "You must do it," said Girard. "I cannot and will not," said the merchant. Girard bolted out of the door, apparently in a rage, but soon after sent a check for the whole bill. The young man began to relent and say to himself: "Perhaps he was offered them at that price. But it is all over now; I am sorry I did not reduce the bill, and get it out of him on something else. His trade would have been worth a good deal to me." Bye-and-by Girard came again and gave him another job. The young man was very cautious, and said, "I was sorry I did not reduce your former bill." "Reduce a bill!" said Girard, "had you done it, I would never trade with you again. I meant to see if you had cheated me." The word "snug" is insignificant and inharmonious, but what an element of strength it is in a man's business. "Has his affairs in a snug share." "A snug house with small liabilities," are encomiums that go a far greater length toward the establishment of good credit than a large surplus and a big trade. Business confined to capital, and capital confined to business, are not a mere play upon words, and the departure from either of these rules is sure to result in disaster. If a retail merchant when he thinks of investing in a saw-mill, a stone quarry, or an oil well, or any other of the thousand temptations that daily press upon his attention, would remember how soon his assets would become unrealizable, there would be a far less number of failures. The same would apply to every trader who is allowing his business to get beyond his

\* Written for the IRISH BUILDER, by John S. Sloane, C.E.

\* Chapel, a technical term applied to the collected members of a printing office.—Hansard; *Typographia*.



capital, either in selling too largely on credit or carrying too much stock. The snug man, in nine cases out of ten, is the successful man.—*Toronto Commercial Review.*

#### WOOD AS A PAVING MATERIAL UNDER HEAVY TRAFFIC.\*

THE primary point into which the conflicting details of the Street Pavement problem could usually be resolved was simply this:—That the conditions of road surface demanded by the two main elements of street traffic, viz., the power and the load, were almost essentially opposed. That was, the surface most favourable to the intermittent tractive action of horses was not the one best adapted for the transmission of rolling load. To reconcile these conditions, so as to render them the least obstructive to each other, was the practical aim of road paving.

A series of observations, collected during the past three years, tended to show that against all the discrepancies which rendered comparisons of street traffic doubtful, opposite conditions had been found to arise by which they were compensated in the long run; and that, on the whole, the effect of such minor irregularities was largely controlled by the element of weight. Upon this consideration it became evident that the formula of direct weight, per unit of roadway width, was that which must afford the least erroneous datum for reducing large series of traffic observations, taken under fixed rules respecting the conditions to be noted. The system adopted by the author aimed at obtaining reliable averages, by short and definite observations properly distributed, rather than from continuous counts over an isolated series of hours. The observations were collected by half hours only, at fixed periods throughout the day of sixteen hours, from 7 a.m. to 11 p.m. in every case; such half hours being respectively observed again on other days at the same points and in different conditions of weather. The remaining night hours affording a traffic small in proportion, and at the same time subject to great irregularity with variable circumstances, were excluded, as vitiating the averages required. The system of short observations, while undoubtedly leading to a highly corrected comparative figure, was also found to facilitate the notes respecting weight, which were of necessity collected simultaneously with them. The traffic was divided under seven heads; for the most numerous and important of which the empty weights could be ascertained with precision, and the ordinary description of load estimated without any serious or cumulative error. These averages sufficed to show how widely the actual wear and tear upon any given roadway might be misconceived, in the light of a merely general or numerical estimate.

Experience afforded by recent trials pointed to the conclusion, that the true theoretical condition under which wood should be used, was that of a continuous and uninterrupted surface. If a whole street could be conceived to be paved with a single slab or section of fir timber, the surface well inlaid with clean grit or large sand, such road would (apart from expansive action) present, without comparison, the fairest test of the durable qualities of this material.

Upon the basis of these principles the system of paving with wood, known as Henson's, was introduced in 1875, having for its object the testing of the previous theory, that artificial structural foothold was indispensable to afford a fulcrum for tractive power, as well as to show the value of real continuity of surface, by providing the nearest possible approach to an uninterrupted area of wood only. The aim of the experiment was primarily to lay the blocks "heart to heart," upon a sound weight-bearing foundation, so as to present a continuous and uniform surface of wood on end. To

such a construction the only foreseen obstacle was the variable expansion and contraction inseparable from that material under varying atmospheric conditions; and this, when accumulated over a large area, would doubtless have been of sufficient extent to become detrimental to the efficiency of a road pavement. With a view to meet this, it was borne in mind that the action of capillary expansion in wood was one which must be regarded as exercised slowly, through the minutest distances; but accumulated in proportion to the area of material subject to it. The compensation for such an expansion could therefore only be uniformly effected over a large area, by providing for the absorption of minute portions of it at the smallest possible intervals, establishing a series of minute compensations throughout the entire structure. The substance which was found in practice to be most available for this purpose was ordinary roofing-felt, from 1-16th to  $\frac{1}{2}$  in. thick; a strip of which, cut to the same width as the depth of the blocks, was interposed between each course, and thus formed a close and yet slightly elastic joint. In laying this pavement the system was adopted of driving up the blocks, as every eight or ten courses were laid, by heavy mallets and a plank laid along the face of the work, attention being given to the even range of the courses as this proceeded. The joint was thus closed as completely as possible, leaving only the actual fabric of the felt to take up the expansion, and by the mutual support of the blocks saving them from the rapidly destructive action of spreading at the edges. The protection of the wood was further enhanced by a layer of similar felt over the whole surface of the concrete foundation upon which the superstructure of wood was cushioned. Results tended to show that the several functions of this simple construction were correctly anticipated. The endurance of the wood, consequent upon its relief from vertical jarring and the mutual support of the edges of the blocks, was increased by probably not less than one-half or two-thirds. An even-grained well-grown deal, of medium weight and hardness, offered the best conditions, as far as experience went.

As regarded built roads, much was generally said upon the question of elasticity above alluded to; and it was one very commonly misapprehended. Distinction was not made between two widely different theories, viz.:—Was road-elasticity requisite as it affected the traffic, or was it desirable as concerned the road itself? Within limits, it was as advantageous to one as it was detrimental to the other. Elasticity of road was for the benefit of the traffic exclusively, and not for that of the road; and the inference was that, if anywhere, it should be immediately at the surface, and there only. A totally inelastic road, whether absolutely smooth or designedly uneven, was open to objections, practically, on other grounds; and herein lay the chief characteristic which had brought wood into favour. Concurrently with a reasonable degree of durability, which admitted of being used to the utmost advantage, it presented always, and uniformly, a slight degree of surface elasticity, to the immeasurable saving of vehicles passing over it.

The standard of comparison, therefore, to which street pavements should be referred, must embody the two elements deducible from the preceding remarks, viz., the work performed (as represented by some systematic scale as suggested), and the sum total of direct expenditure upon it during a recognised unit of time. Of three materials—macadam, granite or porphyry sets, and asphalt—the first was beside the question, if only on the ground of its representing under similar circumstances a fixed charge of from 3s. to 6s. per superficial yard per annum. Granite was at the present time more nearly balanced with wood—excelling it somewhat in the matter of cheapness, but outweighed by it on the score of noise and injury to vehicles owing to its rigidity—the latter two defects insuperable, excepting at a cost which

was but rarely bestowed upon it. Asphalt, labouring under an occasional deficiency insuperable at any cost—viz., absence of foothold—was nevertheless to be regarded favourably in point of cost, and would rank high so long as the definite solution of the problem of durability stood in abeyance. Meanwhile the above notable failing, together with the difficulty attending partial repairs, must detract from the value of the money-figure to be assigned to it.

In view, therefore, of the few materials at command, and of their several qualities and defects, the following questions comprised the chief issues to be decided:—

First.—Was the policy of paving for heavy traffic to aim at reduction of first cost and the retaining of certain alleged advantages attached to systems of continuous maintenance? or at the extinction of maintenance, and the acquisition of durability, combined with certain alleged disadvantages accompanying great resistance to wear?

Secondly.—Could a paved surface be made to fulfil the needs of tractive power by the intrinsic nature of any material, independently of designed mechanical form tending to obstruct free draught of load?

And lastly.—Could the durability of any description of wood, compatible with reasonable cost, be enhanced either in construction or in maintenance, so as to place it on a commercial rank with substances of greater resistance, but of less advantage in other respects?

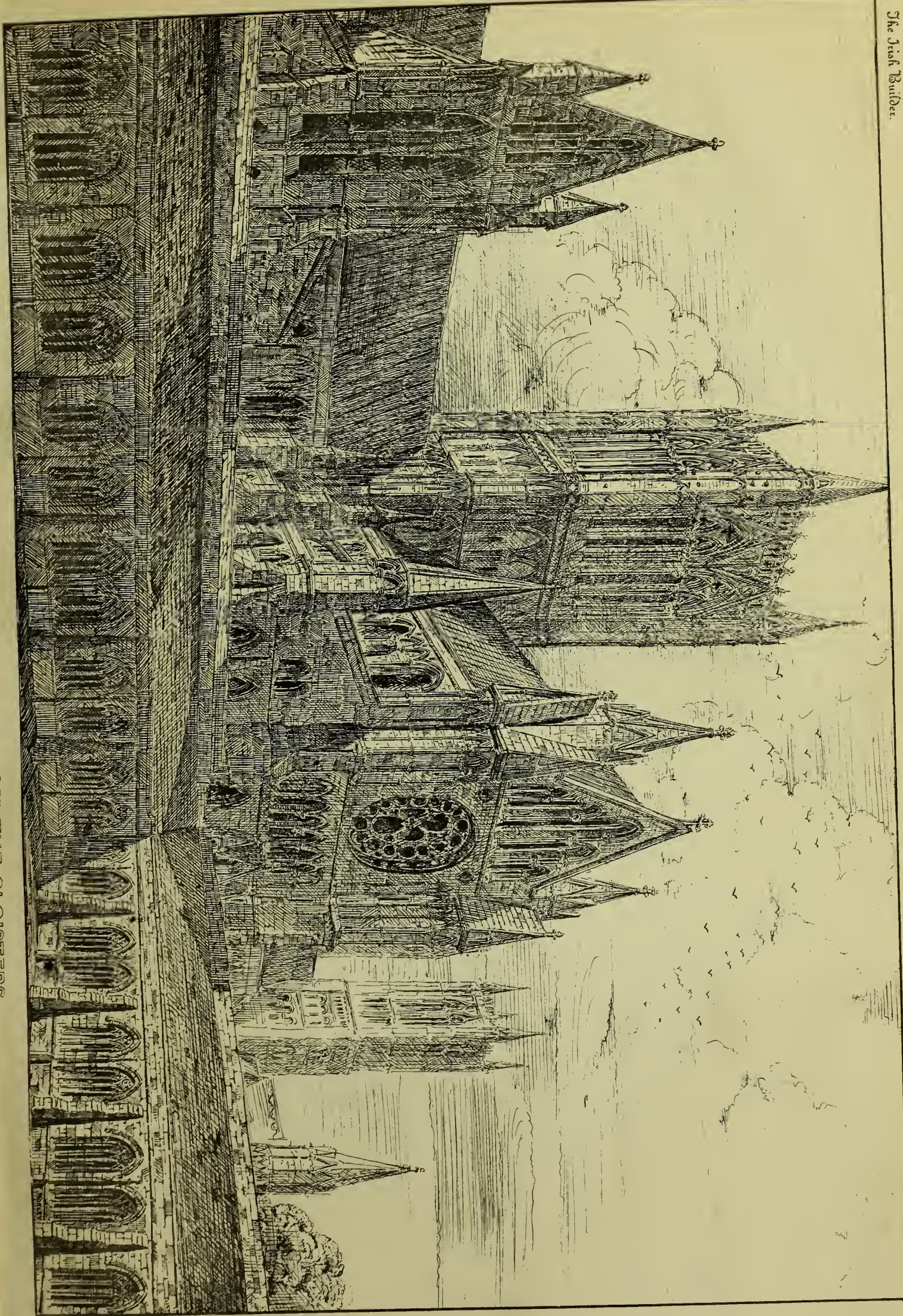
#### ADVERSARIA HIBERNICA,

##### LITERARY AND TECHNICAL.

RESUMING our notes in last issue on the antiquity of Irish music, our olden native minstrels, and in reference to Thomas Moore, we find that, despite of the restrictive laws we mentioned, the influence of our minstrels increased, and they long maintained their popularity with the people. The writer we have already quoted refers to a commission issued by Henry VI., with the advice of his lieutenant, Sir Thomas Stanley, wherein he names several classes of Irish minstrels, with others, as coming into the English districts and receiving great gifts and goods from his lieges for exercising their minstrelsy contrary to law; while at the same time, according to the king's words, they are represented as exploring the secrets of the district to report them to their countrymen. The marshal is ordered to enforce the above law against the minstrels, to imprison them, seize on their horses, harness, gold, silver, goods, and the instruments of their minstrelsy ("*Instrumentalia Minstralcium Suarum*"), and retain them for his, the marshal's, proper use. The above goes to prove that the wandering minstrels of Ireland were respectable in equipment, and that they were seized and imprisoned for more than one reason. They were worth robbing, and they were suspected otherwise as being emissaries. The king above-mentioned stimulated the marshal to enforce the law by giving him pecuniary reward, which, in ordinary cases, would go to the Crown. It is apparent that the statute had become inoperative, or was not generally enforced, as the king mentions that his liege people were conferring great rewards ("*Grandia Dona et Bona*") upon the minstrels, "and, coupling these facts," observes our authority, "it is clear that the proscribed were influential by their professional talent and skill only; for between them and these 'Lieges' who were rewarding them, no community of language, interests, or connexion existed." The political history of the Irish minstrels would make a deeply-interesting volume, and it would have been a congenial theme for the pen of Thomas Moore; but our national poet, though he wrote a "History of Ireland," the rich store of MS. materials in the vernacular was unknown to him, and otherwise a sealed book in his time. Though Moore's "History of Ireland" will always possess some interest from the fact of being written by such a man, it can never become

\* By Mr. O. H. Howarth, Assoc. Inst. C.E. Read at meeting of Institution of Civil Engineers, London, on the 29th ult.







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a popular, reliable, or satisfactory work, and this much may be written of it, and without the least disparagement to the author. It has been well observed that a class of men like our native minstrels who could cause such an intense anxiety to the Government of their time for several centuries, and not by force of arms, but by music alone, "must have been an influential and accomplished race." Again, Queen Elizabeth aimed at the complete extirpation of the native minstrels. Without actively forwarding the Royal intentions no State favours could be obtained, and, as a consequence, we find Lord Barrymore and others accepted commissions under the great Seal to hang the harpers, destroy their instruments, &c., whenever found. "That these commissions (one of which I lately glanced at)," says an author already acknowledged, "were rigidly executed, the favours afterwards conferred by Elizabeth, fully evince." But, strange to say, as observes the same authority, so little did this tyranny effect the object intended, that really the national music obtained ground. In one hundred years after, when the lists or registries were made at the Revolution of 1688, of the estates and household goods belonging to King James's adherents, the English or Anglo-Norman families of the Pale, almost every such family possessed "One Irish Harper," as the lists of the time will fully prove.

In a footnote to his melody "Though the Last Glimpse of Erin," which is set to the air of the "Coolin," our native poet gives an extract from Walker's "Historical Memoir of the Irish Bards" as to the origin of the air. It is necessary to quote Moore's authority here, as we intend to make it the subject of some remarks, and to quote facts which go to prove that Moore and others were wrong in their conclusions. Walker (Moore's authority) writes:—"In the twenty-eighth year of Henry VIII., an act was made respecting the habits and dress in general of the Irish, whereby all persons were restrained from being shorn or shaven above the ears, or wearing Glibbes or Coullins (long locks) on their heads, or hair on their upper lip called Crommeal. On this occasion a song was written by one of our bards, in which an Irish virgin is made to give the preference to her dear Coulin (or the youth with the flowing locks) to all strangers (by which the English were meant), or those who wore their habits. Of this song the air alone has reached us, and is universally admired."

The Coulin is a very ancient, and may be termed also a truly civilised air, although Moore himself, in his "Prefatory Letter on Music" accompanying his "Melodies," expresses his doubts as to the antiquity of Irish Music, at least of the polished and "civilised" kind. "We are all," says a writer who knew his subject, "acquainted with the Coulin or Coolin—an air that once heard can never be forgotten—a melody which breathes the most touching tenderness and exquisite sensibility, and the memory of which enables the Irish to hear Scotland's 'O Nanny wilt thou gang with me,' or her 'Banks and Braes' without envious repinings." It will dispel a general error, or will at least help towards that end, to once more declare that the Coulin is not connected with an imaginary enactment of the reign of Henry VIII., and that it is not a "civilised air," composed in the middle of the sixteenth century, but belongs to a much earlier period. The Coulin is not alluded to in the statute mentioned, and there appears no account of such a preceding as mentioned occurring in respect to the Irish chieftains in that reign. But going back to 1295, or 584 years ago, a parliament was held in Dublin, at which an act was passed which expressly mentions the Coulin, and minutely describes it for its more effectual prohibition. If this statute be referred to by those specially interested, it will be found that those persons who half shaved their heads, and encouraged the growth of their locks at the back, called "Culan," were mis-

taken often for another class of the inhabitants, which led to much international animosity. This led to the enactment that all persons should wear, at least as to the head, the English habit or tonsure, and not presume longer to turn their hair into a "Coolin," under the penalty of dstraint, arrest, imprisonment, and deprivation of the benefit of the law. And here again we will quote our native writer of nigh fifty years since in allusion to this statute, and in reference to Moore's authority:—"This, the only statute made in Ireland, was passed 242 years before the act cited by Mr. Moore; and in consequence of it some of the Irish chieftains who lived near the seat of the English Government, or wished to keep up the intercourse with the English districts, did in or soon after that year, 1295, cut off their Coulin, and (the fact is worth stating) a distinct memorial of the event was made in writing by the officers of the Crown, as I myself have seen and perused. It was on this occasion that the bard (ever adhesive to Irish habits) endeavoured to fire the patriotism of a confirming chieftain, and in the character of some favourite virgin declares her preference for her lover with the Coulin before him, who complacently assumed the adornments of foreign fashion. Hence the song tradition calls the "Coolin," and hence we have proof of its composition as one of the civilised and refined Irish airs, nearly two centuries and a half before the period so erroneously alluded to."

We think the above details are conclusive in respect to the antiquity of Irish music, and the facts will not detract from the fame of our national poet, who if he knew of the existence of the enactments which we have cited, at the period of penning his Melodies would doubtless have availed himself of the information.

In our notes in the preceding and present issues we have been more literary in our leanings than technical, and we have given more of Moore and less of mortar and other building materials appertaining to architectural advocacy or art workmanship. There are reasons for all this, but we need not state them explicitly. We claim the liberty of the subject; and, talking of the liberty of the subject, we are reminded of the liberty of the Press. On the latter theme a well-known Irish poet forty-six years since penned the following excellent sonnet, which appeared in a Dublin periodical of the time under the signature of "A. de V." (Auhrey de Vere):—

"Some laws there are too sacred for the hand  
Of man to approach; recorded in the blood  
Of patriots; before which, as the rood  
Of faith, devotional we take our stand;  
Time-hallow'd laws! magnificently plann'd,  
When freedom was the nurse of public good  
And power paternal; laws that have withstood  
All storms, like faithful bulwarks of the land;  
Unshackled will, frank utterance of the mind,  
Without which freedom dies and laws are vain.  
On such we found our rights, to such we cling;  
In these should power his surest safeguard find.  
Tread them not down in passion or disdain—  
Make man a reptile, he will turn and sting!"

How many shackles have not been removed from off the Press during the six-and-forty years. Though there is freedom now, and sometimes to licentiousness, the law still affecting newspaper property and in respect to libel needs reform, with other minor but still necessary improvements.

A short time previous to the appearance of the above sonnet the same poet, under the same initials and in the same periodical, wrote the following sonnet on the River Shannon. An article (with an illustration) of Thomond Bridge, Limerick, precedes the poem under the well-known initial of the late George Petrie. The last paragraph in its concluding sentence is made to act as a graceful introduction to the poet and his verses. Our distinguished antiquary ushers in "the following beautiful sonnet to the Shannon, the composition of a gentleman of rank and, what is better, of patriotism and talent, who resides on the banks of the noble river he apostrophises." In quoting the verses we will observe that the poet has long outlived the

antiquary, and the Muse in his hale old age has had the same charms for him as in his earlier days on the banks of the Shannon:—

"River of billows! to whose mighty heart  
The tide-wave rushes of the Atlantic sea—  
River of quiet depths! by cultured lea,  
Romantic wood, or city's crowded mart—  
River of old poetic founts! that start  
From their lone mountain cradles, wild and free,  
Nursed with the fawns, lulled by the woodlark's glee,  
And cunhat's hymeneal song apart—  
River of chieftains! whose baronial halls  
Like veteran warders, watch each wave-worn steep,  
Portunna's towers, Bunratty's regal walls,  
Carrick's stern rock, the Geraldine's grey keep.  
River of dark mementoes! must I close  
My lips with Limerick's wrongs—with Aughrim's woes?"

We are not political, but historical, in this journal, therefore we will not fear to speak of Limerick wrongs or Aughrim woes, and we might do so at some length without acting the partisan. As George Petrie said, in the article preceding Mr. Aubrey de Vere's poem, forty-six years ago, we may say to-day, while acknowledging like him that connected with the above subject there are many historical recollections of a deep and saddening interest:—"To see our countrymen of all classes and denominations united in the bond of peace is our first wish, our most ardent aspiration, and the page of history that would mar this consummation [for party purposes] by exciting one painful recollection, or one ungenerous exultation, one desire—as it should be the desire of all good men—to leave buried in silent oblivion." The spirit of the remarks we quote are excellent, but such subjects as the field of Aughrim or the siege of Limerick can be treated in our day as subjects of historical interest without running any danger of inflaming the minds of poets, patriots, or their admirers, to the injury of national unity. The River Boyne, now, as well as the River Shannon, and Aughrim as well as Athenry, and a score of other Irish places are more interesting to historians, archæologists, antiquaries, architects and geologists for what they are likely to yield, than to mere politicians—parliamentary, journalistic, or otherwise.

H.

## BRICKMAKING AT CREWE.\*

THE author stated that his object in bringing the paper before the Institution was in the hope of eliciting from those members of the Institution who are familiar with brickmaking the results of their observations of the practice in Dublin, and the probability of being able to obtain a cheaper and better home-made brick than can at present be had.

At Crewe the machine-house, kiln, and drying-shed were placed in a field where there was a considerable depth of clay, which would last for a number of years. Close to the kiln and machine-house there was a very large spoil-bank of good brick-clay, which had been tipped there during alterations in the works. It was from this spoil-bank that the majority of the clay was at first drawn for brickmaking. The machine-house was constructed so as to hold two of Pinfold's machines and the old locomotive engine which drove them. One of these machines was placed upon the ground floor, the other on a floor level with the top of the Hoffman kiln, so that the bricks as delivered could be wheeled direct on the kiln top to be dried. When the kiln top was covered, the brick barrows were then run down an inclined plane by an arrangement which allowed of an empty harrow being pulled up as the full ones ran down. The wheels and legs of the harrows were guided in grooves, and the friction of the legs was sufficient on the inclined plane to prevent the harrows descending too rapidly. When at the bottom of the incline, the bricks were either wheeled to the tracks in the open air, or to the drying-shed. From the machine on the ground floor the bricks were wheeled direct to their drying-ground. Over each machine were two sets

\* "On the Making of Bricks in Cheshire, and the Saving effected by Burning them in a Hoffman Kiln." Read at Institution of Civil Engineers of Ireland, May 7th, 1879, by Mr. J. A. F. Aspinall, Member.



of rolls, between which all clay was passed before it entered the machine itself. These rolls not only mixed the clay, but crushed up pieces of limestone to powder if they were not picked out by the "filler." The rolls were held together by a pair of breaking bolts, which, in case any piece of iron or other hard substance got into the rolls, invariably broke, putting the rolls out of gear, and preventing further damage being done to the machinery. After passing through the bottom rolls, the clay fell into a pair of pugging screws, which forced it between the rolls in front of the die, from which the clay issued in a long stream into the cutting-off table, which was made to cut off ten bricks at a time, and which was worked by one man moving a handle geared into a rack. The action of cutting off placed the bricks upon a board, which, as soon as filled, was picked up by two lads who placed it upon a barrow with a spring top. They then put another board in its place. Each barrow held four of these boards, and when filled they were taken off to the drying-ground by a "wheeler out."

The dies through which the clay passed were lubricated with water, which gave the bricks a nice smooth skin. Steam can be used for lubricating equally as well, and makes less mess. The cutting-off table was lubricated with a cheap oil, costing 4d. per gallon. This oil was also smeared over the top of the table to prevent the clay sticking to it, and the boards upon which the bricks were carried off gradually became saturated with it, so that the bricks left them readily. For cutting off, the best piano wire was used, and it may be noted here that it is when cutting off that the inconvenience is felt of having clay passed through the machine which is not perfectly free from all rubbish, stones, grass, or bits of wood, and too much attention cannot be paid to this point if delays with broken wires are to be avoided.

Each machine was said by the makers to be capable of turning out 12,000 bricks per day, and I found that, with very clean clay and no breakdowns, we sometimes made 10,000 per day, but even 8,000 per day of nine hours was in excess of the actual average. These two machines were driven by an old locomotive engine. It also drove a capstan for hauling the clay wagons from the lower part of the yard, and a winding drum for pulling these wagons up to the upper storey where clay was tipped with the top rolls.

In the winter time the green bricks were wheeled direct into a large drying-shed, which was built close to the machine-house. This shed was built in two spans of 30 ft. each, and was 200 feet long, and capable of holding about 40,000 bricks, and would dry about 28,000 bricks per day. The floor was formed of a series of flues 6" wide, made by placing rows of two bricks on edge, from end to end of the building, and then covering these with a paving of bricks on the flat. These flues had a rise of 1' 16" towards the end of the shed, where they were gathered into four chimneys about 25 ft. high. At the furnace end the floor was covered with 18' of clay, which gradually tapered off to nothing towards the chimney end. This had the effect of driving the heat forward, and giving an even temperature over the whole floor of the shed. Over this coating of clay the shed was well paved with large bricks so as to stand the constant wear and tear of the barrows. Sand was always spread over the floor so as to present a perfectly even surface for the green bricks to lie upon. The sides of the shed were formed of lifting-doors, so that entrance could be made at the most convenient place for getting dry bricks and the flow of air through the shed could be regulated. There were twelve fires at the firing end, into which the coal was fed at the top, the whole of the air having to pass underneath the bars forming the grate. The shed roof was sheeted with timber and covered with felt. In the summer time this shed was not used, the whole of the bricks being dried in racks in the open air. The bricks, when dried, were put on spring barrows and wheeled into one of the chambers of the

Hoffman kiln. [Prof. J. Thompson's description was read by the author.]

The kiln at Crewe was 100 ft. in diameter at the base, and was divided into twelve compartments, each of which was capable of containing 20,000 bricks. In the centre of the kiln was a chimney 114 ft. high. Around the kiln was built a wall, supported upon brick pillars and arches, and the space between the upper portion of the kiln and this outer wall was boarded over with boards about three-quarters of an inch apart, so as to allow of the air passing freely through them. From this outer wall their sprung a roof, which was carried up the chimney, and thus the whole of the kiln was thoroughly protected from the weather. The whole of the top surface of the kiln was used as a drying-floor for the bricks, preparatory to their being put into the chambers below. The boarded floor mentioned above was constructed with the idea that the currents of air passing through the openings between the boards would dry the green bricks with which it was covered, but it was not found that the bricks were dried with anything like the necessary rapidity, and in the winter time it was extremely difficult to prevent their being frozen. Upon that portion of the kiln over the flues leading to the chimney, a small drying-floor was made by carrying round the chimney a circular flue, at one end of which was a small fire, and at the other a damper for regulating the draught. Over this flue were spread a certain number of bricks, but by far the greater number of bricks dried were those over the circular tunnel itself. The system, however, of drying upon the top of the kiln itself is not a convenient one and cannot be recommended. Wherever bricks have to be dried by artificial heat they should all be laid down at one time, and dried with regularity, so that they may all be taken up at one time. Where, as above, a set of bricks are subjected to three different degrees of temperature, they dry at varying rates, and a risk is run of those which are longest drying being damaged on the floor. One of the greatest objections to drying on the kiln-top is, that if the green bricks do not dry at the same rate as the burning is going on below, the floor does not get cleared in front of the burner, and he has to remove the bricks out of his way, damaging the corners in so doing, and making them a second-rate article at once; besides which if heat is allowed to come away from the top of the kiln it is so much lost towards burning the bricks. Although the kiln-top should not be used for drying, it should still be covered over with a roof, so as to protect the "burners" from the weather. When dried the bricks were picked up by a lad and slid down from the kiln-top in a wooden shoot, which was constructed with a considerable curve at the bottom, so that the bricks were gradually brought to a state of rest. They were then picked up by a lad and piled upon a barrow, which was made with a top supported on springs, so that any jolting that might take place would not injure the bricks. These barrows weighed, when empty, 3 qrs. 8 lbs., and when loaded with forty dry bricks, 3 cwt. 3 qrs. 1 lb., and were nicely balanced, so as to throw as much weight on to the wheel as possible. The bricks were then wheeled into the kiln by a man who, assisted by another lad, stacked them in such a way that a space was left underneath each of the firing holes, so that the fuel could drop right on to the bottom of the kiln. The price paid for taking the bricks from the drying-ground and setting them in the kiln was 10½d. per thousand for those from one machine, and 1s. for those from the other, three men and four lads being employed at this. A wooden pole was usually put through each of the firing holes, in order to guide the "setter" and prevent him building a crooked stack. For the division-walls between the chambers it was found more convenient to build up a temporary wall of half-burnt bricks, plastering them over with clay-wash, and leaving a few loose bricks here and there, which could be drawn out, than to

have the fixed walls which were at first put in, and which merely had a central doorway. Three large openings were generally left in the bottom of the temporary wall, and were covered with iron plates, to which were attached long rods to enable the setter to withdraw them at the last moment when he had filled the chamber and was ready to build up the doorway. These openings were made rather towards the outer diameter of the circular tunnel, because the tendency of the flame and heat was to keep to the inner side of the circle and get the shortest way to the flue. The outer doorways were built up with two walls, one about 18 in. away from the other, so as to leave an air space between, and they were made perfectly air-tight with clay-wash. Outside this again was placed a movable wooden door, so as to keep the heat in as much as possible. It was always found, however, that the bricks which were nearest the doorways were least burnt, and where they were not burnt enough they were used again to make the partition walls between the chambers. Having two chambers open at a time, one for filling with green bricks, and one for drawing out the burnt ones, was not found to be enough in the summer time, as the bricks were so hot that they could not be withdrawn unless a third chamber was opened and more air allowed to enter.

Around the kiln was a line of rails, upon which the ordinary railway trucks were run, and the bricks were loaded direct from the kiln into them, by two men who filled their barrows, wheeled them to the trucks and piled the bricks carefully inside, for 5½d. per 1,000. 1,000 bricks weighed three tons, and, considering that this weight had to be moved twice and wheeled about fifteen yards, it is not a high rate.

The machinemens and men at drying-sheds were paid for every thousand bricks which went into the kiln, and the setters, burners, and loaders for all good bricks which came out of the kiln, thus making it the interest of each set of men that their own section of the work was done properly. The fuel used for the kiln was slack, from the Haydock collieries, which cost 9s. per ton, the price of coal from the same company being at that time 14s. per ton. The cinders used for the engine and drying-shed were charged at 5s. per ton. Although the cost of making bricks during the winter is considerably increased by the cost of drying, yet good bricks can be made at a price which will ensure a reasonable profit.

The greatest number of bricks produced was 510,055 during July, and the smallest number 356,560 in February. The total turn-out for eleven months, beginning February and ending December, 1874, was 4,812,015 bricks. The cost of labour for producing these, exclusive of foreman's wages, was 10s. 11½d. per 1,000. The cost of all fuel used for driving engine, drying bricks and burning them, averaged, during the three worst months of the year, 3s. 11d. per 1,000.

In erecting any new works I think it would be well to consider the following points before starting to build:—The kiln should be placed in the centre of the field selected, and if two machines are used, I think it would be advantageous to put them on opposite sides of the kiln, working the second one by means of a shaft carried over the kiln. I would then build the drying-sheds in a semi-circular form, putting one on each side of the kiln, but leaving sufficient room between the sheds and kiln for a cart or railroad. This method of construction would reduce the amount of carrying backwards and forwards to a minimum. The drying-sheds would be so constructed that in the summer time the bricks could be wheeled through them to the open air stacking ground. A works such as I have described could be erected for about £4,500, including the cost of machines, engine, drying-sheds, and kiln; and, with a yearly turn out of 5¼ millions of bricks a very small profit per thousand would pay a handsome dividend on the capital invested.



# PROTECTION AND TRADE DEPRESSION.\*

THE following paper, though partly political, it is economic, and has sufficient direct connection with the question of Capital and Labour as to warrant us in re-producing it in these columns, though it is not necessary that we should agree in all particulars with the views set forth :—

As to the partial prevalence of protectionist notions, the causes are not far to seek. We are not far removed from the time when these notions formed the main portion of codes of home, colonial, and international trade—when it was implicitly believed that home manufactures ought to be encouraged; that everyone as a consumer should do everything he could to support his neighbours rather than to assist strangers, which would be considered unpatriotic to the last degree; that as much as possible every community should live in itself, and be as independent as possible of every foreign country, with a host of such other narrow views and poor conceptions of the general good. I need not say that the masses of the people are very tenacious of their notions, the more so when they were shared by those to whom the people would look for guidance. It is not, therefore, surprising that these notions prevail to a considerable extent at the present time. Again, almost every class is strongly inclined to identify its interests with those of the nation, and when the nation is affected by any partial or pressing misfortunes, every class would propose to relieve such distress by supporting its own interest. Hence, when over-production is considered to be, as it were, the disease under which the nation is suffering, the nostrum is—shorten the working hours, but keep wages as nearly as possible up to the usual standard. When the national depression is thought to be owing to the low prices of grain and meat, limit the market by imposing a duty on imports, and thus shut out the produce of those who will not freely receive our goods in exchange. In fact, these and such other partial and interested remedies for passing national evils, bring forcibly to my mind the fable of the “Town in danger of being besieged,” and the consequent aphorism, ‘There is nothing like leather.’ In reference to class interests thus, as it were, usurping the public weal, I may be permitted to state that in a paper on Labour and Capital, which I had the honour of reading recently before a provincial literary association, I endeavoured incidentally to controvert this notion of class interest *versus* the public good. In his *Economic Errors*, recently re-published, the celebrated Bastiat, adopting the Socratic method of reasoning, clearly proves that if the interest of producers or sellers only be considered, scarcity must result; while if the interest of consumers or buyers be considered, abundance must be the consequence: and he gives in support of his argument instances so quaint and striking that one or two may be cited. He says:—“As to producers, we must agree that every one of us has anti-social desires. Are we market gardeners? We would not be sorry if it froze on all the gardens in the world except our own. That is the theory of scarcity. Are we owners of iron works? We desire that there may be no other iron in the market but what we bring there, whatever want of it the public may have, and exactly in order that this want, strongly felt and imperfectly satisfied, may occasion a high price to be given for it: this is also the theory of scarcity.” Again, further on, dealing with the counterpart of his argument, Bastiat says:—“If we now come to consider the immediate interest of the consumer, we shall find that it is in perfect harmony with the general interest, with the claims of the well-being of humanity. When the buyer appears in the

market he wishes to see it abundantly supplied; that the seasons should be propitious for crops of every kind; that inventions more and more wonderful should put within his reach a greater number of products and gratifications; that time and labour should be spared; that distance should be obliterated; that the spirit of peace and justice should allow the weight of taxes to be lessened; that barriers of every kind should be thrown down; in all that the immediate interest of the consumers follows the same parallel line as the public interest well understood.” I shall only give two other very brief remarks from Bastiat. The one is so well established and the other so important that it would be inexcusable to omit them. After some preliminary observations he writes:—“I don’t fear saying that the theory of scarcity is much more popular.” And as a sort of counterpoise to this he says:—“And though it may appear extraordinary, it is certain that political economy will have fulfilled its task and practical mission, when it shall have made popular and rendered irrefutable this simple proposition—“The wealth of mankind is the abundance of things.” The interests of the consumers—that is of the whole community—being thus identical with the public good, it must be obvious that any State measures adversely affecting consumers would be a retrograde policy, and could not be too much deprecated. As people have the clear and undoubted right to satisfy their requirements, by buying the best and cheapest home products they can get, so also ought they have the full and free right to buy whatever else they require in foreign markets—in other words, there should be neither let nor hindrance to the importation of foreign produce, and thus all would be allowed to share to the fullest extent the combined results of the bounty of Providence and of the most productive industry of man. The whole scope and tendency of foreign commerce is, if left untrammelled, to do this in the best possible way. That free trade, then, must be immensely superior in its beneficent effects to protection cannot admit of the slightest doubt in the mind of anyone who has examined into the working of both. As the world progresses, new inventions come to be applied, changes supervene, improvements are effected, with necessarily some derangement and considerable alteration of the economic machinery for the time being—and then the machinery goes on again smoothly and beautifully till the progress of time renders further improvements necessary, with the view to the saving of motive power, or to increased efficiency. In these changes the general good is promoted, while partial interests may suffer or be entirely annihilated. The means of locomotion at the present time, and some thirty or forty years ago, furnish a striking illustration. Car proprietors and owners of roadside inns, and stablemen and others, suffered pecuniary losses by the introduction of railways; but the general public have gained numerous and vast benefits. Many handicraft people, such as sawyers, stitchers, and various others, have suffered by the introduction of such machinery as superseded their labours, and thus seriously inconvenienced them till they could betake themselves to other employments; but the public good is thereby fostered and increased. Instead of trusting to the continued operation of free trade to remedy the present inconveniences that have beset farmers and others, are we to have recourse to the old, and, at least in these countries, almost effete nostrum, protection? To this I shall be quite consistent in adding the further questions: Are we, in order to restore sawyers and stitchers to their former position, to destroy the machines which now do many times the work which they were able to do? Are we to tear up our railways in order to restore to ostlers and country inn keepers their former business? These questions may now appear silly, because we have quite got out of the former state of things which they indicate, and fully into the present; but it is not a

great many years since they had quite a formidable, indeed an awful significance. And I do not hesitate to assert boldly and broadly that one gigantic error, one great mistake, underlies the action of trades unionism as well as protection and other agencies artificially tending to run up prices of any kind abnormally—and that is, the notion of making the public pay whatever is necessary to maintain this or that class interest. This false principle is now so generally well known that there seems little need to adduce any authoritative statement to illustrate its malevolent prevalence. Look upon protection, then, in whatever way you will, you will find it analogous to, rather I should say identical with, much that is objectionable in trades unionism; nay, you will find this further similarity, that as unions have recourse to strikes when their business is slack, and when strikes are ineffective, except for mischief, so protectionists would have recourse to prohibitive imposts when commerce is stagnant, and when such imposts would only intensify the hardships under which the empire labours. The only point that occurs to me as being of any consequence to notice is the fact that, though protection finds little favour in these countries, it is still widely popular in, I may say, all European and American nations, and in our own colonies. That protection is still rampant in other countries, while it is all but stamped out in our own, appears to be owing to the fact that Great Britain is not exclusively or mainly agricultural or manufacturing, but that it is both; and these different interests co-existing force upon the people in a measure the necessity of allowing them free scope; while in other countries it may be generally said only one main interest is found to predominate, and minor interests are sacrificed to it. It is easy, however, to say that the only way to meet popular fallacies is to assert fine principles; the difficulty is to get people to admit the justice of these fine principles. There is only one other point on which I beg to make a few remarks, and that is, the impracticability, nay, the impossibility, of carrying into effect any protective schemes at the present time, even if free from objections in principle. Any measure in the present depressed times tending artificially to raise prices would only find favour with the interested few; it would be sure to meet the most determined opposition in the Legislature, as well as from the great masses of the people. In the discussions going on in the newspapers as to the best means of mitigating the present distress, and as far as possible guarding against its recurrence, other means than protection are being forced on public attention, foremost among these being the adoption of better systems of cultivating the land than those heretofore in use, and the consequent production of larger supplies of home-grown food. Much, no doubt, may be accomplished in this direction; for with all our boasted improvements in science, with all our discussions as to the relative advantages of farming on the large or the small scale, we are still far from getting the amount of produce from the land which it would give under better management of an obviously feasible character.

CONVERSAZIONE.—Mr. Bateman, as President of the Institution of Civil Engineers, is to give a conversazione on Monday, the 26th inst., in that part of the South Kensington Museum which contains the engineering and naval models and machinery. Mr. Bateman has intimated that, on this occasion, the authorities at South Kensington have given permission for the reception of other suitable objects for exhibition on the evening in question.

THEATRICAL SECURITY AND PUBLIC SAFETY.—A number of regulations have been made by the Metropolitan Board of Works, London, in respect to construction, use and security of theatres, under the provisions of the Metropolitan Management and Building Acts Amendment Act, 1878. On the whole the regulations are calculated to ensure increased security to playgoers within and to the public without, if the provisions are fairly enforced.

\* From a paper “On the Impolicy of a Revival of Protection as a Remedy for Trade Depression,” by Mr. J. Roylean. Read at a meeting of the Statistical and Social Inquiry Society (Dublin), May 6.



## THE LETTERKENNY RAILWAY.

On the 6th, in the House of Lords, Viscount Lifford moved the re-commitment of this bill. After detailing the history of the railway, he said, that in a case such as the present, where the Chairman of Committees was opposed to the bill, it should be referred to a Select Committee, and that it was desirable that there should be some means of escaping from any arbitrary ruling in such matters.

Lord Waveney supported the motion for a commitment, remarking that it was a matter of public policy, the question being whether aid should be given in the direction of railway undertaking for the purpose of developing the resources of the country. Agricultural transactions were, from want of communication, carried on under a great disadvantage, and the mineral wealth of the district was improperly developed. Without some assistance the days of railway enterprise in Ireland would be numbered, and it would be utterly hopeless to attempt to raise any large sums of money in connection with them. The course which had been taken with regard to the bill before them was calculated, unless remedied, to have an injurious effect.

Lord Redesdale replied at length, and in the course of his remarks observed that he was sorry to have to trouble their lordships in the matter, but after what had been said by the two noble lords he had no other alternative open to him. The decision which had been arrived at with regard to the bill in question had been laid before the House considerably more than a month ago, and the main question now to be dealt with was one which related to the method in which related to the method in which the private business of the House was transacted, and to his position as Chairman of Committees. There had always been a large discretion given to the reigning Chairman of Committees with regard to private business brought before Parliament. Unless such an authority as that which was exercised by himself, and had been exercised by his predecessor, was permitted, private legislation would become one of the greatest evils of the country. During the present session he had pronounced out of sixty-four bills that four, exclusive of the present one, were not fit matter for private legislation. One was a measure relating to omnibuses, and by which powers were sought which ought only to be a matter for public legislation. In another case powers were asked for, which, if granted, would cause no end of evil from one end of the country to the other. With regard to the particular bill before them, it was an unopposed bill. The parties came and stated their case. He raised certain issues, and they then asked permission to call further evidence. Time was allowed for this, and more evidence was brought. The bill was solely introduced for the purpose of enabling the company to have a 3-ft. gauge instead of the customary one, and it was not desirable that the ordinary one should be departed from. The company had been a very unfortunate one. He thought that it had been some eighteen years in existence, and that it had done very little except under the first act. £80,000 had been spent in construction, and nearly the whole of the land had been bought. Considerable works had been erected, all made for the purpose of carrying out the national gauge. In the last session of Parliament the company asked for no new powers beyond those compulsory ones which were necessary to obtain a little land not already purchased, and for an extension of the time for completion till 1881. No proposals were then brought forward for a narrow gauge. Under these circumstances, he did not consider that the line was to be looked upon as unremunerative, and it did not therefore come within the scope of exceptional legislation. One point always borne in mind with regard to private legislation, was that a bill reported against in any way should not be committed except with the consent of the committee themselves, and when they were of opinion that sufficient evidence had not been adduced. If there

had not been sufficient evidence in the present case, it was the fault of the parties who failed to produce it. He had been chairman of committees for twenty-nine years, and this was the first time anything of this sort had been brought against him. The course he had pursued was the proper one, and if he had followed any other he would not be fit for the responsible post he held.

Lord Granville said it was quite clear that the practice which had been followed by the noble lord was essential to the good working of the private legislation of the House. The noble lord had during his 29 years of service done more than anyone else to maintain the high character of the House with regard to private legislation.

Lord Lifford, in reply, maintained that in questions affecting thousands of pounds and the property of hundreds, great care should be exercised, and that no decision should be given by one individual unless there was a right of appeal.

Lord Beaconsfield was understood to say that the question was one involving some complications; but great evil to the proceedings of the House and the general welfare of the country would arise if they failed to support the ruling which their Chairman of Committees had laid down.

Without entering into any useless contention now in respect to the Letterkenny enterprise—over which a good deal of time, however, appears to have been lost,—one thing is clear: a railway is required, and has long been required, so that the great resources of Donegal may be developed. The country is rich in mineral and building materials, but we fear that private enterprise will have to attempt more, for little aid need be expected from the State, at least under the present Government. We decidedly think that in a mountainous district, and in a case where it is difficult to procure large funds, a narrow gauge should be sanctioned. It has been allowed in the sister kingdom, and narrow gauges are adopted abroad. As time advances, in respect to certain districts at least, narrow gauges will have to be permitted, if Irish industrial resources are to be developed. The financial circumstances of England and Ireland are widely different, and Irish railway companies are perforce obliged to cut their cloth according to their measure.

## THE ART OF THE ITALIAN RENAISSANCE.\*

AFTER briefly sketching the political and social history of Italy during the 13th and 14th centuries, and referring to the sculptors of those times, the lecturer proceeded to say that all through the fifteenth century there was among the painters a distinct effort after technical perfection apart from, and even sometimes in distinct antagonism with, higher qualities—spiritual and intellectual—skill in linear perspective, in drawing the human figure, in painting from the nude, and in relief produced by *chiaroscuro*. The aspiration of the painters of this age was naively expressed by Benvenuto Cellini, who says:—"The important point in the art of design is to model your nude men and women well. The first painter who seems to have aimed at this was Pietro du Puccio, whose sole extant works are those strange green frescoes which preclude the Old Testament series by Benozzo Gozzoli in the Campo Santo at Piza. These are said to be the earliest known examples of "*buon fresco*." Puccio is a worthy predecessor of Masaccio in his conscientious study of the human form. The first fresco represents the Creation, the Temptation, and the expulsion of Adam and Eve; the various scenes being crowded together in one composition, as is usual with the earlier painters. The next fresco tells the story of Cain and Abel, the rejection of Cain's sacrifice, &c. After graphically describing the peculiarities of the

frescoes, the lecturer said that Paolo Uccello, born in 1397, might be regarded as the second great student of scientific perspective. Next came a group of men of various individualities, but with a common feeling for pure pictorial beauty, in whom the art of the middle Renaissance may be said to culminate—men who were rather completers, who absorbed and vitalised the technical labours of others, than pioneers who struck out distinctly new paths. In Sandro Botticelli, however, the spirit of the Renaissance was chiefly noticeable. Hitherto they had to do with men who painted sacred subjects only, but many of Botticelli's greatest works deal with subjects taken from heathen mythology but treated quite in the modern spirit. Botticelli was, however, very far from being a mere pagan epicurean. With all his love of beauty, he was not a man to take a purely decorative view of life, like our modern art-for-art's sake philosophers. We are told that he abandoned painting and became a *piagnone*, or penitent, as the great preacher's disciples were called, and that not even the fear of starvation induced him to take up a brush again after he had thus laid it down. All his work is, indeed,

"Sicklied o'er with the pale cast of thought."

If Leonardo be the Faust of Italian art, Sandro is the Hamlet. An intellectual melancholy has set its seal upon him from the first. Sandro is full of strong contradictions. He is himself an enigmatic personality which allures and fascinates us, and all his creatures partake of this enigmatic character. With much in him that is essentially modern, which we feel to belong to the 19th century as much as the 15th, his style has in it something Byzantine—something which recalls the Madonnas of Cimabue. It is easy to imagine him brooding before the great Madonna of the Rucellai Chapel, until he had absorbed her into his own soul. In his style Sandro is a Florentine among Florentines. His outlines, exquisitely subtle as they are, are always sternly defined. In power of expressing form by firm lines and delicate gradations of tone, we must turn to Holbein to find his equal, and Holbein is his inferior in variety of ideal expression and poetry. There is a strange individuality about each of Sandro's pictures taken separately. With all his mannerism of style he gives you something new in each. No painter has given so many types of the Madonna, though it is true he has a certain favourite one. There is a lovely picture of his in the National Gallery, in which the Virgin, an innocent peasant girl, stands between St. John and an angel, holding in her arms a vigorous child with limbs full of life, who looks almost as big as herself. There is something very sweet and touching in the tender responsibility and girlish *insouciance* of her face. She seems almost like an elder sister, with latent motherliness called forth by the weight and warmth of the exacting creature that nestles at her breast. Again, take that picture in which the child, standing on his mother's knee, stretches his arms to embrace her, and kisses her cheek. In this we have the simple expression of a very human tenderness, deep and tranquil, rather than ecstatic. The Virgin seems lost in a gentle dream which her instinctive clasp of her child and hending of her cheek does not end, but rather stirs with fresh currents of sweet reverie. In the suggestion of these moods of half sensuous reverie Sandro, indeed, excels. There are two other pictures of more ample expression. In the first, a tall and melancholy Virgin, surrounded by a bevy of young angels, holding lilies in their hands, and with waists twined with roses, sits with the Divine child, lying on his back in her lap. This is a most characteristic example of this most melancholy of painters. Here we have his favourite conception of Our Lady of Sorrows, preternaturally tall, with narrow shoulders and languid bearing, no longer occupied with a tender sensuous dream, but full of profound melancholy in which love and sorrow are one.

\* By Dr. John Todhunter. Being the third of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.



She resigns herself to the bliss and the anguish of her mysterious motherhood, and accepts the ministrations of the angels tranquilly, and without pride. The child in this picture is singularly beautiful. His divine nature seems to express itself in the touch of gravity in his face. He also seems to have a foretaste of sorrow in his outlook upon the world, and yet he remains perfectly a child. In the angels his peculiar feeling is manifest. His angels are not the roguish sprites of Fra Lippo, who seem to be creatures full of humanity. Sandro's are less angels than "spirits of the human mind," like those in Shelley's Prometheus. The melancholy of the painter appears in their faces, so full of a divine *ennui*. They seem to—

"Dwell with Beauty—Beauty that must die,  
And joy, whose hand is ever at his lips,  
Bidding adieu."

In the fourth picture, one of his loveliest works, two angels place a crown on the head of a Madonna, who inscribes the words of the Magnificat—"My soul doth magnify the Lord"—in an open book held by two boy angels. In this picture a note is struck deeper and purer than in the last. The Virgin is not merely Our Lady of Sorrows, but Our Lady of Consolation. If we may imagine tears in her heavy-lidded eyes, they are not tears of sorrow, but of thanksgiving—a mystical peace which is ecstatic without being hysterical seems to brood over her, and the child's eyes may be gazing upon the dove from which it descends. If the Virgin be the centre figure of most of his Christian pictures, Venus is the central figure of most his pagan ones. In the National Gallery are two of his Venuses, each of which expresses a distinct conception. In the one the goddess is a type of the fecundity of the earth, and lies in a flowery meadow surrounded by children who heap on her roses and grapes. In the other she appears rather in the guise of a temptress, and sits at the feet of Mars, who lies asleep and stripped of his armour, with which impish little satyrs are playing. Her face is full of sly triumph and cat-like cunning, just the opposite of the girlish innocence of the young Madonna. The lecturer next referred to two other painters—Filippino Lippi and Domenico, who, he said, without possessing the genius of Botticelli, excelled him as mere painters, and concluded by stating that he would next treat of "The Rise of the Venetian School."

#### A MILLIONAIRE WORKMAN.

In Johnstown are situated the great works of the Cambria Iron Company, and among the hundreds of men employed there at one time, was a man named John Murphy—nothing wonderful in the appearance of its owner, save to those who knew him well and were acquainted with his story with all its manly, touching details. He was truly "eccentric," inasmuch as he differed from ninety-nine men out of a hundred. He was so earnest, hard-working, kindly hearted, economical in habits, shrewd in business, and ambitious for his family's advancement that to the world at large he was "eccentric," to those who knew him he was—John Murphy. He was at once a wire drawer in the Gautier Steel Works, a capitalist in the real estate market in New York, a workman who carried his dinner in a tin pail on Monday, and ate the same amid the dirt and noise of the factory, but on Wednesday he could, if he desired, dine in his own elegant dining-room in his superb residence on Fifth-avenue, in New York—surely a singular compound to exist in one man. Honest John Murphy has been a wire drawer for forty-five years, and has been saving in his habits all that time. He piled up dollar after dollar until he had enough to purchase some real estate in New York, and then he began to speculate in city property until he was worth several hundred thousands of dollars. His family were ambitious themselves, and John was ambitious for them.

They dressed well and made many friends, and finally purchased and moved into their present magnificent home on Fifth-avenue. John is sixty-nine years old, and his hair is silvered. He kept steadily at his old work, for he said he was too old to make a change in his mode of life. He lived in his palace, but he entered it by a back door, and never came into his parlours when there was company in them. His family love and respect him, and would gladly have him come to assume his rightful position, but he will not have it so, and they have ceased to find fault with his wishes. Soon after the Gautier Wire Works were started at Johnstown, John went there, got a situation, and worked there until recently, and the Johnstown *Tribune* referred to his story. An old man named Welsh, who had been John's firm friend and crony for thirty years, had his foot torn off by the machinery, and John took him to New York in order to nurse and care for him. "Old John Murphy" did not come back, but it is not a difficult stretch of the imagination to picture him still drawing wire, his honest, kindly face blackened with soot and smoke, and at night, when the time comes for rest, one can almost see him as he picks up his lunch bucket and walks off to his princely home on New York's most aristocratic thoroughfare.—*Toronto Commercial Review*.

#### THE MOORE CENTENARY.

At the last meeting of the Centenary Committee at the Mansion House, the Lord Mayor presiding, it was announced that the sum of £177 12s. 6d. had been received as subscriptions, and a letter was read from Barry Sullivan, Esq., enclosing a cheque for £2 2s. A letter was read from the private secretary of their Graces the Lord Lieutenant and the Duchess of Marlborough, intimating their wish for the success of the Centenary celebration, and expressing their regret that absence from Ireland would prevent them from being present on the occasion. A letter was read from Lord Lansdowne's secretary, stating that his lordship had forwarded a portrait of Thomas Moore by Newton for exhibition among the loan collection at the celebration. A letter was also read from W. J. Fitzpatrick, intimating that he desired to place at the disposal of the committee on the loan collection upwards of one hundred autograph letters of the poet. A letter was read from Robert H. Atkinson, Esq., secretary of the Council of the Royal Irish Academy, stating that if the Lord Mayor and committee would meet the Committee of Polite Literature and Fine Arts with the view of selecting such articles as may be deemed most suitable for the loan collection, the Academy would place at the disposal of the committee such memorials, &c., as the Council were not precluded from lending by the terms of any contract.

Professor Kavanagh read a letter from the Rev. Dr. O'Mahony, All Hollowes College, in reference to a piano stated to be the identical instrument on which Moore first practised at 12 Aungier-street, and which instrument is now the property of the Rev. Dr. O'Mahony. He also read a letter from the Rev. D. P. Mulcahy, C. C., establishing beyond doubt the history and the identity of this highly interesting relic of the national bard.

The Lord Mayor, as chairman, suggested that a letter should be forwarded by the hon. secretary to the Rev. Dr. O'Mahony, thanking him for his generous offer of the loan of the piano; and also to Professor Bedford, for his kind offer of a loan of several interesting manuscripts of Moore's songs and letters.

An interesting letter was read from Don Enriquez Hine, of Buenos Ayres, South America, stating that "It will doubtless prove gratifying to all Irishmen, and to the Committee of Moore's Centenary included, to learn that it is the intention of your countrymen, residing at this distance from their native land—over 7,000 miles—to com-

memorate the Centenary by an entertainment devoted solely to the songs and poetry of Ireland's greatest bard. The Literary Society of this city, composed entirely of the English-speaking community, many of whom are from the dear "ould land," will assemble on the 28th of May, to listen to the melodies of their beloved poet, and the request I have to make is that, if you will graciously transmit by the first mail after receiving this, the Centenary Ode, which we observe by the Press the renowned D. F. M'Carthy has been requested to prepare, I will be pleased to undertake the recital of the same at the society's entertainment, and thus the memory of the immortal Tom Moore shall be honoured the same day by communities divided by 7,000 miles of ocean. A letter addressed to me, English Society, Buenos Ayres, shall be duly acknowledged, and I shall have much pleasure in sending the Press account of the manner in which the Ode is received by your countrymen in this city.

The Acting Secretary stated he had forwarded a copy of the above letter to Mr. D. F. M'Carthy, and that gentleman, in reply, wrote—"That it must be gratifying to the committee, as it certainly was to him (Mr. M'Carthy) to receive from so remote a place that message of cordial sympathy with the celebration, and that, having ascertained that a mail was leaving for South America, he had forwarded a copy of the Ode to Don Enriquez Hine." The hon. secs. were directed to forward a letter of thanks to D. E. Hine.

We would venture on reminding the countrymen and admirers of Moore that the date of the celebration is nearing, and, if they desire to see the poet fitly honoured in his native city, increased exertions and subscriptions are needed.

#### ELECTRIC LIGHT.

THERE have been of late such contradictory statements in respect to electric light, that it has been somewhat difficult on the part of the public to arrive at any satisfactory conclusions as regards the advantages of the light, and with respect to its future. Sir J. W. Bazalgette, C.B., Engineer to the Metropolitan Board of Works, and Mr. J. W. Keates, Consulting Chemist, have presented a report on the experiments with the electric light on the Thames Embankment. The report contains full details of the experiment, and there is also a comparison given between the cost of the electric light as compared with gas. It appears that the cost per hour of the electric light is 5-78d.; of gas equivalent to electric light in opal globe, 2-00d.; ditto in frosted globe, 3-50d. The lights on the Embankment are stated to have burned steadily and well, and when 20 naked lights were at one time exhibited in the machine-room, the impression on those present was that the character of the light was like bright sunshine. The report concludes thus:—"There can be no doubt that electric lighting has now established itself as a light which, under particular circumstances of street lighting, or lighting of great interiors, railway stations, or similar places, will be used, but at present there are defects connected with it that must prevent its adoption as a general mode of lighting competing with gas. There is, in our opinion, no prospect at present of any such general competition."

**SIGNBOARDS AT LIVERPOOL.**—In accordance with the recent decision of the Health Committee of the Liverpool Town Council, signboards within the borough will not be allowed for the future to project more than 2 ft. from any building nor to be lower than 12 ft. from the ground. The notices to this effect came into operation on Thursday, and it is expected that a good deal of opposition will be encountered by the committee as the majority of tradesmen's signs in the town do not come within the requirements of the new order, and will have to be altered or pulled down altogether.



## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

### ANNUAL GENERAL MEETING.

THE secretary read a letter from Mr. S. W. Kershaw, M.A., tendering his resignation as librarian of the Institute, an office which he had held for eleven years. A vote of thanks for the valuable services rendered to the Institute by Mr. Kershaw was passed.

A letter respecting the forthcoming national exhibitions at Sydney and Melbourne was read from H.R.H. the Prince of Wales.

The report of Council was adopted, and the following elected as office-bearers:—

*President.*—John Whichcord, F.S.A.

*Vice-Presidents.*—Thomas Hayter Lewis, F.S.A., Horace Jones, and Edward Middleton Barry, R.A., John Macvicar Anderson, Arthur William Blomfield, M.A., David Brandon, F.S.A., Arthur Cates, Ewan Christian, Joseph Clarke, F.S.A., Henry Curry, John Gibson, Octavius Hansard, John Honeyman (Glasgow), Edward P'Anson, F.G.S., John Loughborough Pearson, A.R.A., F.S.A., George Vulliamy, Alfred Waterhouse, A.R.A., Thomas Worthington (Manchester).

*Honorary Secretary.*—Thomas Henry Wyatt, F.S.A.

*Secretary.*—William Henry White.

On the motion of Professor Donaldson it was resolved unanimously:—"That the grateful acknowledgments of the Institute be presented to Mr. Charles Barry for the efficient and courteous manner in which he has discharged the various and specially important duties of his presidency—including his constant attendance at the Paris Exhibition—and by which the efficiency of the body has been materially improved and its influence strengthened."

### THE SOUTH-CITY MARKETS.

IN the traverse case of Thomas Fallon, a draper in South Great George's-street, a special jury increased the arbitrator's award of £710 14s. 10d. to £1,000. In the case of Henry Gerty, watchmaker and jeweller (who claimed £3,000), the arbitrator's award of £659 was increased to £750. Counsel on claimant's behalf examined Mr. Carson, C.E., Mr. Baird, builder, and several customers, as to the value of his trade. Mr. Gerty deposed that he had in nine years, out of the proceeds of his business, invested £5,900 in real property. An ex-policeman deposed that, by direction of the company, he had for nearly three months past watched the premises of claimant in order to discover what trade he had been doing! Witnesses for Mr. Gerty valued his interest in the premises at £1,100, whilst those for the company considered £499 10s. sufficient compensation.

### SCIENTIFIC ADVICE.

"The friends thou hast, and their adoption tried,  
Grapple them to thy soul with hooks of steel;  
But do not dull thy palm with entertainment  
Of each new batched unfledged comrade."—*Hamlet*.

ONE would think that the rare example of "Aranmore" (where so-called scientific advisers attempted to test French lenses by English formulæ) ought to give the Irish Lighthouse Board quite enough of "White-hall" interference, but it appears such is not the case; and the poor old *Princess Alexandra* steam yacht, although on her last legs, her plates as thin as wafers, with sixteen years of hard work, must be sent off to Milford for a London lecture-room exhibitor to show off his little "dodges" at Galley Head. Why could he not come by rail, and save coals and the Mercantile Marine Fund?

The Commissioners should mind what they are about: when the yacht is done they will never get another, and a few more rubs on Copeland Islands will finish her. When they lost the *Argus* they got the *Midge*, with much diplomacy; they have no one now to fight the higher powers for a vessel like the *Alexandra*, and the *Jasseur* gun-boat might

be thought good enough for them. What a sad thing it is that we have no scientific advisers in Ireland! Could not the Dublin Mechanics' Institute supply one? How do the Scotch board get on without such assistance? \*

## THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

### AN ARCHITECTURAL QUERY.

THE following is one of several similar queries put to us from time to time, and which we have refrained from publishing:—

SIR,—What is the reason that the IRISH BUILDER for many months past has not published any of the proceedings or papers read at the Royal Institute of the Architects of Ireland? I presume that the Institute is still in existence, as on the occasion of the meeting of the British Association in Dublin last year some of the members entertained Mr. Charles Barry, the late President of the Royal Institute of British Architects. Shortly after, if I remember aright, it was announced in your pages there was an accession of members to the Dublin body, but since that time, now several months since, I have not seen a paragraph in the IRISH BUILDER, nor indeed in your London contemporary either, representing the Irish Institute. Please oblige an old subscriber by letting me know the situation of affairs in Dublin.—Yours,

A PROVINCIAL ARCHITECT.

[Our esteemed correspondent was anticipated, for, owing to other letters and personal inquiries, we have been compelled to speak plainly elsewhere in present issue.—ED. I.B.]

### LONDON BOARD OF WORKS MEM.

AT the last meeting of the Metropolitan Board of Works (London), the chairman announced that he had received a letter from the chairman of the Committee of the House of Commons upon the electric light, in which it was stated that a meeting of the committee would take place on Tuesday, the 20th inst., and asking whether it was the intention of this Board to send any witnesses up for examination. Mr. Rogers proposed that the letter should be referred to the Works Committee, with power to act. Mr. Richardson seconded the motion. Mr. Runtz asked whether it was true, as stated in the newspapers, that the Board, in consequence of the satisfaction they felt with the experiment of the electric lighting of the Victoria Embankment, had decided to extend it the whole length of the Embankment? His object was to ascertain whether the extension was to be made at the cost and risk of the Board or of the company. Mr. Keates (consulting chemist) replied that the Board had simply agreed to pay 5d. per candle per hour, and extended their contract for a period of three months beyond its original date, the lights to be carried on up to Waterloo-bridge. The motion was then agreed to.

### HOME AND FOREIGN NOTES.

**THE PARIS CONSERVATOIRE.**—This building is to be reconstructed and enlarged at a cost of 8,000,000 fr. The library is to be much enlarged, the museum repaired and improved, and the offices rebuilt. The course of instruction will not be in any way affected by the rebuilding.

**WATERFORD ART EXHIBITION.**—On the 6th inst. the art exhibition was opened in the Town Hall, Lord and Lady Waterford attending. In the evening the Mayor entertained the contributors and the principal citizens. Several objects of interest are on view, and some of them are specially noticeable for their merit.

The *Pictorial World* of Saturday has, besides its usual quantum of wood engravings, a very excellent likeness of Mr. Isaac Butt, M.P., Q.C., who died on the 5th inst. The full-page drawings of "At the Ford" and "Every Dog has his Day" are exceedingly good. The reading matter is tolerably fair, and two penny pieces will purchase the number. During the present month special numbers will be issued, for which an increased charge will be made.

**ARCHITECTURAL.**—At the last monthly meeting of the committee of the Orthopaedic Hospital, Usher's Island, Mr. William Sterling was unanimously appointed hon. architect in succession to the late Mr. W. Fogerty, and the thanks of the Committee were expressed to Mr. Sterling for undertaking the duties.

**PAVING MATERIAL.**—A sample of stone from Mr. Matthew's quarry at Balbriggan has been left at our office. It appears to be a hard close-grained stone, and we would be glad that an effort should be made for the purpose of testing it on our city streets. We are informed that sets can be supplied at a rate far below that at present paid for Welsh stones.

**THE WESTLAND-ROW STATION.**—We are gratified to learn that Messrs. Courteney, Stephens, and Bailey, of this city, have been declared contractors for the iron roofs, bridges, &c., required for the long-contemplated improvements at the above-named station. The amount of contract is about £13,000.

**COACHMAKING EXHIBITION.**—In London from Monday till Friday in Whitsun Week an exhibition of designs and models illustrative of the Art of Coachmaking will be held in the saloon of the Mansion House. The exhibition is under the auspices of the Coachmakers' Company. The Lord Mayor will distribute the prizes on the last day.

### BOUCICAULT'S THEATRICAL SPECULATIONS.

—It is stated that Booth's Theatre, New York, has been leased by Dion Boucicault for six months, from the 1st of September next, at a rental of 20,000 dols. During the summer he purposes spending about 5,000 dols. on the house, which has had really no repairs since it was first opened, eleven years ago.

**NATIONAL PORTRAIT GALLERY.**—The *Athenæum* says that very comprehensive changes and considerable improvements are being made at the National Portrait Gallery. The collection of pictures is being re-arranged, and the works transferred from the British Museum, which are a selection from the numerous examples that have so long been out of sight over the cases in the "Bird Gallery" at Bloomsbury, are being incorporated. It is understood that the whole will be opened to the public at Whitsuntide.

**ARTANE INDUSTRIAL SCHOOL.**—Since our last issue, the Lord Lieutenant, accompanied by the Earl of Portarlington, and Sir William Gull, has again visited this school. They were received by Mr. Lentaigne, C.B., and the Rev. Mr. Hooper, the manager, by whom they were conducted over the school. They inspected the buildings and the various workshops, with the boys at work at their respective trades, and on leaving expressed themselves highly gratified with the institution and the efficiency of its working.

**EXCAVATIONS AT OLYMPIA.**—The latest reports of the excavations at Olympia show that the Helot habitations to the south and south-east of the Temple of Zeus were particularly dense and extensive. Besides this, some very important additions to the sculptures of the pediment group have been found; among them the body of the Centaur who steals the boy, a large portion of the recumbent old man, and an arm of one of the Lapithæ. All these are being cast in plaster, and are to be removed to Berlin shortly and fitted into their respective places.

**THE CELTIC CHAIR.**—Professor Blackie reports the close of the subscription for the endowment of the Celtic chair, the sum being £11,937 5s. It has been agreed, on the suggestion of his committee, to postpone the appointment of a professor for twelve months, in order that the capital fund may be increased. The title of the chair is to be "The Chair of Celtic Languages, History, Literature, and Antiquities;" and the professor holding it is to be bound to teach the Gaelic language practically, as long as it is "a recognised medium of religious instruction in the Highlands."

**ROMAN ANTIQUITIES.**—In the excavations for enlarging the bed of the Tiber, an exceedingly elegant room belonging to a wealthy dwelling-house of the first times of the Empire has been discovered in the gardens of the Farnesina. The ceiling is formed of the finest stucco, with reliefs of figures and ornaments of the best taste. The walls are painted in the Pompeian manner, with delineations of figures in various styles, among which are some pictures executed in simple profile and with as much delicacy as the most graceful designs of the famous *lekythoi* of Attica. In the excavations of the Roman Forum have been discovered bases of statues with dedicatory inscriptions of the Imperial age.



**THE THAMES AND LIFFEY TOLL BRIDGES.**—On the 24th inst. the remaining toll bridges across the Thames will be freed, namely, Lambeth, Chelsea Suspension, Albert, and Battersea. When, may we ask, will the "Metal Bridge" over the Liffey be freed from its toll? The time has long since arrived for sweeping the impost away, and, as a preliminary, the Corporation should be compelled to do their obvious duty in the matter.

**[O] "TOOLE'S THEATRE."**—Would it be too Hibernian of one with a Milesian name to add the prefix of O to a name imperfect without it? The *Era* understands that Mr. J. L. Toole has secured a site for his new house, which most probably will be called "Toole's Theatre." It is to be built after designs by Mr. F. E. Thicke, and will be situate close to Bedford-street, Strand, upon the spot where stand what are now called Harvey's buildings. The size of the new house will, we hear, be equal to that of the Lyceum, and among the novelties to be introduced is a "sliding roof," to let in the air and let out the laughter sure to be excited by the drollery of the popular comedian, who will undertake the responsibilities of management.

**MILITARY R. C. CHURCH, CURRAGH CAMP.**—The opening of the new organ, recently erected through the exertions of Rev. Mr. Doyle, took place on Sunday, the 4th inst., in the presence of a large congregation, the church being filled in every part by the soldiers and a large number of civilians who came from the surrounding district. The organ, a fine instrument of two manuals and pedal, stands at the east end of the south aisle, in a handsome pitch-pine case of Gothic design. The front pipes are beautifully decorated; the pure mellow tone of the instrument, its variety of resource, and power to well fill the very large church (a timber structure seating 2,000) were brought out by the playing of Mr. Browne, jun., who presided, the voluntary displaying the sweetness and delicacy of the soft stops, and the variety of the solo stops, being especially admired. The organ in every way reflects credit on the builders, Messrs. W. Browne and Son, of Dublin, of whose skill and perfect workmanship it is an admirable example.—*Communicated.*

**SOLDIERS' READING ROOMS.**—When not on drill or out on leave the canteen or barrack pot-house was the only place for the British soldier in our time to resort to, for the questionable recreation of drinking bad drink, and indulging in coarse conversation. We learn that a scheme has been just started in Paris for providing all the barracks in France with reading rooms. Hitherto the French soldier has been left completely without resources for the employment of his leisure time, and it is to be hoped that a plan will be adopted which will greatly conduce to the comfort and welfare of the non-commissioned officers, who, as compared with their English comrades in arms, have decidedly a hard life of it. Steps are also being taken for the opening of swimming schools, and the War Minister has addressed instructions to the generals commanding the different *corps d'armée* to this effect. There is room for considerably more being done in the interest of the Irish and British soldier on the score of instruction and healthy recreation.

**TERRA-METALLIC PAVING.**—At a meeting of the Street Committee of the Borough of Walsall Town Council, the tender of Mr. Joseph Hamblet, of West Bromwich, was accepted for the supply of from 56,000 to 60,000 square yards of his terra-metallic pavings, and it was remarked that the committee had given a good deal of time to this question, and had had much experience with Mr. Hamblet's pavings, with which they had always been well satisfied; they were exceedingly well made, and the difference between his price and the lowest tender for pavings was more than made up by the difference in quality. To prove the wear of his terra-metallic pavings, several samples were taken up out of the main street of the borough, where they had been subjected to a heavy traffic for thirteen years, and it was found that they were not the sixteenth of an inch thinner than originally, and did not betray any trace of wear. Mr. Hamblet has supplied the Borough of Walsall alone with something like 400,000 square yards of his terra-metallic pavings, exclusive of the present contract.

**SURCHARGE OF THE LONDON METROPOLITAN BOARD.**—An extraordinary scene took place on Monday at the Metropolitan Board of Works, Spring-gardens, upon the occasion of the annual audit of the accounts of the board for the past year. Mr. W. Tucker, the auditor appointed by the Lords Commissioners of her Majesty's Treasury, attended for the purpose, and Sir J. M. Hogg, M.P., the chairman, and several members of the Metro-

politan Board were present. Upon reaching an item of over £16,000, charged in the account as expenses incurred in the promotion of the bills introduced into Parliament by the board last session for the better supply of water to the metropolis, the auditor announced that he had received several notices of objection to the payment of such accounts, and that he had been called upon to surcharge the board for such expenditure. It will be remembered that when the notices for these bills were given in Parliament, the Vestry of St. Pancras led the opposition which was taken up by several other vestries and district boards of the metropolis, and that the projects met with considerable opposition in the Metropolitan Board itself. The auditor ruled that he could pay no attention to this combined opposition, but the objectors must appear before him as individual ratepayers and state their objections. Upon this one or two of the opponents in the board, backed by several ratepayers, were heard upon their objections, which were combated and defended by prominent members, who contended that the board had a right to make this expenditure for the benefit of the ratepayers in securing an adequate supply of water, which they had not at present. The auditor took a different view, and contended that what the board ought to have done was to have procured the resolution of Parliament, which would have cost nothing. He held the expenditure to be illegal, and surcharged the board the £16,000. It is understood there is no appeal against this decision.

**THE CHANGES IN THE IRISH LOCAL GOVERNMENT BOARD.**—In our issue for March 5 we (*Medical Press*) foreshadowed the retirement of Sir Alfred Power from the Presidency of the Irish Local Government Board, and the probable appointment to that office of Mr. Henry Robinson, Under-Secretary to the Lord Lieutenant. Our anticipation has come to pass, and the past week has witnessed a change of office which is of extreme interest and importance to the profession. Sir Alfred Power's dictatorship is a thing of the past; that of Mr. Robinson—let us hope—will never exist. The late king of the Irish Local Government was undoubtedly a remarkable man. Strong-willed and self-willed, born to command, yet lacking the discretion to make him a good governor. He ruled his department with an unbending despotism, but with unequivocal talent. He had many admirers within the circle of those who served under him, but yet few friends, and though the Local Government grew and thrived under his régime, it acquired the character of a national institution which regarded neither the law which it administered, nor the persons with whom it dealt. Sir Alfred Power's successor is admittedly a man of ability, and his long service as an inspector inspires us with hope that he will make an excellent president. We give him the credit for a sufficiently sound judgement to see that the system of administration of the Local Government Board is of a by-gone date; that the law must be constitutionally and fairly administered, and that autocracy is out of place in the present day. He has a most weighty duty in hand, and we are confident he is capable of performing it efficiently; and it is not inapposite now to repeat what we said two months before. The throne of the Local Government Board is, with respect he it said, of more direct interest to the people of Ireland than of the Lord Chancellor, or even of an Archbishop. The efficiency of the sanitation and poor-law administration of every parish and every village in the country is, every day in the week, directly influenced by the Local Government Board, and while on the one hand an industrious, intelligent, and capable leader of the department would out-value a prince in its relation to Ireland, so on the other hand an indecisive, dull, or impracticable President of the Local Government would be a living calamity to the country.

#### TO CORRESPONDENTS.

**AN ARCHITECT (Belfast).**—True in substance and true in fact. **ERRATA.**—In paper in last issue "Greek and Roman Oratory, &c." there were two or three errors. The words in second last column "less indirectly to the architects" should read "less directly," &c., and the concluding words of last paragraph but one of the article, "they would owe so much" should read "the world owes so much."

**A STUDENT (King's Inns Library).**—Quite correct; the papers which have appeared in these pages have been availed of, utilised, and the matter, in some instances, recast by the respectable publishers in question. Our leave was not asked, nor indeed has any acknowledgment yet been made of the source of indebtedness. There is a remedy, but we shall wait a little before using it.

**AN IRONMONGER.**—It is only a bit of commercial rivalry. If it leads to the public benefit there is no need to object to the style of the particular announcements.

**RECEIVED.**—Several letters have been cancelled as the matters are stale, and not of sufficient interest to warrant publication. J. W. C.—M. D.—H. S.—T. C.—Assistant Surveyor (yes)—F. B.—G. H.—C. E. (Cork)—Architect, London (will be sent)—R. D. S.—M. A.—R. H. A., &c.

#### NOTICE.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

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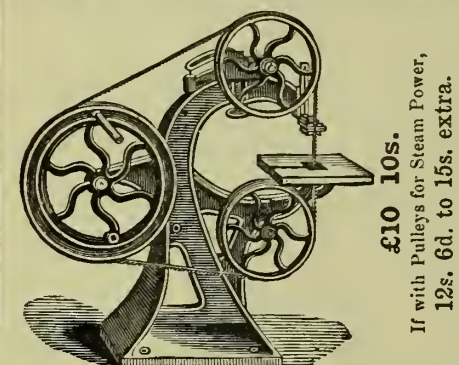
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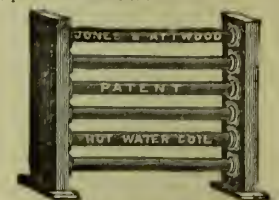
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## THE IRISH BUILDER.

Vol. XXI.—No. 467.

## SANITARY AND BUILDING REFORM.





the ruin and dilapidation that exist in different quarters of the city, and to know how little is being done to effect any improvement.

Some blocks of artisans' dwellings have been erected north and south of the Liffey, but they are not an entire success; indeed, some of these buildings are failures as regards design, arrangement, and health. We do not like to be invidious in pointing to particular blocks of dwellings whose design does not bespeak a high order of architectural talent. We examined one block of these artisans' dwellings two or three days since, and a more uncouth assemblage of dwellings we never witnessed. They are bald and sterile in design, and most irregular in arrangement. They cannot be comfortable for the tenants—at least for some of the tenants; and the balcony arrangement to one of the blocks, and the manner in which the doors of the rooms which upon thereon are placed, is "a caution"—nay, it is an actual "sensation," and "spectacular scene." In the particular block of dwellings we allude to, the balcony space looking out into a wide street was utilised for a laundry area, and a number of lines were festooned with clothes-a-drying. The linen charitably hid a portion of the noble design of the architect, and perhaps it was as well. The architects of our artisans' dwellings in Dublin have, we fear, much to learn as regards arrangement, for none of the houses they have yet designed are suitable for the needs of the working classes. The rooms in some of the blocks are miserably small, and the backyards and sanitary appliances are scant and limited.

We had hoped that, in a commercial venture, more improvement would be visible than there is, but the common suburban building speculator, though he builds badly, he builds tastefully. His Dead Sea fruit at least tempts the eye and the pocket, even though they turn to ashes afterwards upon the lips.

We are ready to hail any and every building reform, and aid in its accomplishment; and if the Corporation of Dublin, through its officials, earnestly take up the question, and enforce the bye-laws and regulations they have framed, it will give us great pleasure to record its action from time to time. We have so often discussed the question of bad building and its sanitary surroundings, we need not carry the subject further at present. Our people, however, in city and suburbs, may count upon us in vigilantly watching their and our interests in the matter of sanitary and building reform.

#### THE CHILD, INVENTION—AND THE MOTHER, NECESSITY.

A REVERIE.

"NECESSITY is the mother of Invention," has been dinned into my ears since I was a boy; but, from my experience of her and the world, I think Necessity was my stepmother, and a very stingy and hard taskmistress she has been to me since a child. I have eaten my scant bite often in sorrow; and as I had to work hard and for long hours to satisfy her, and bear her taunts, pinches, and bruises, I had not much time to relieve my overcharged feelings with a good cry of salt tears, unless I did it in bed by robbing myself of the few hours' sleep I was vouchsafed. Necessity for many years gave me no credit for my good intentions or suggestions,—she rather snubbed me; told me to "shut up, you little prate-box, and don't bother me

with your whimsical notions." If stepmother really knew she had the guardianship of an inventive genius, she might have acted more kindly towards me, in view of her own future interests. Perhaps Necessity, after all, was my real mother; but it is such a long time now since I was born, I cannot settle the matter to my own satisfaction. I assume, however, that I was the child Invention, and that Necessity gave birth to me, and I might have starved, as often I have starved, on one meal a day, and hid my shabbiness on Sundays, if I did not try on bettering my position when I entered my teens. I educated myself, learned the alphabet by listening to other children, picked up and treasured torn picture-books; and, by volunteering to mend children's toys, acquired my first little knowledge of construction, which I afterwards improved upon in more extensive mechanical and scientific fields. My first essays were certainly imitative, but imitation is food for invention, for it is requisite for one to know how others have worked, and how to do their work if needed, that we may improve upon their methods. Necessity is as much the mother of Imitation as Invention. One must imitate to acquire knowledge or how to work at a craft, to live, but Imitation makes but few sacrifices for the common good; while Invention, in the first instance, is generally a martyr. Blest martyr! you sow, but others reap; you die, and above your grave the plagiarist is honoured. What boots it if I, like others, have suffered a living death?—I am only fulfilling the destiny in store for all my kin. Why did I starve myself to learn, lie in hay-lofts and under hayricks at night, read under the city gas-lamps after dark, pore and study whenever and wherever I could,—think and brood, and brood and think, till my temples ached and my brain seemed turning? Why did I do this? I never looked for a patron for a mercenary purpose, or signed a document telling the world that the offspring of my brain was the work of another. Though Invention is my name, I never invented falsehood, and lied like the truth—that is, told lies as truths. Half a century is setting upon my head; my hair is prematurely grey, and methinks I am a little bald a-top. I belong to no political party. I am no sectarian sidesman; I cannot labour or want for many years more. The civil list exists not for inventors like me. I have invented no infernal machine or ponderous cannon for slaughtering mankind by thousands. I have only invented or improved appliances and systems for reforming and keeping people alive, and helping them to be more happy. 'Tis plain I have missed my vocation, or I have lived too late in the world, for my services are not likely to command recognition, not to speak of a pension. Perhaps I will be written down as a melancholy egotist—"a ne'er do weel," by the very brain-pickers who saw something good in what I said and in what I did, while they ignored the clothed skeleton who walked the world untitled and unmonied. I have a strange presentiment betimes, and it steals over me in the silent watches of the night—aye, and in the daytime, in moments when I am unconscious of being in the place I am. I have visions of another and a better world, but of these sights I shall be silent. The downward journey of life has commenced. Yet, broken-down and feeble as I have grown, I still can work, and must work. Better, after all, to die in harness than die a swathed lump of helpless flesh full of pain, an encumbrance to self and others. Tomorrow, and to-morrow, and to-morrow again, may come, but to one no very distant evening of my days there shall be no to-morrow. Invention must die at last in my person, the child and the fruit, the old man, but not the seed; the spirit and seed will still live and fructify for ages.

Draw the curtain to! No, let the setting sun gleam upon my closing eyes. I looked upon it in the morning of my life, proudly and hopefully, and I can bear its light still. Softly, dear; smooth my pillow a little, and

let my last look be towards the West. Join me in a prayer, for the hour has arrived. "There are newsmongers at the gate." Are there, dear?—kind inquirers after the poor old dying inventor, whose obituary is already written, all save the hour at which he died. If there is any praise to-morrow, the "dull cold ears of death" will not hear it; and 'tis as well. God bless you, dear! God bless you! I die forgiving all my enemies. Farewell! I die in peace." ✕

#### TAXATION AND LAND COMPANIES.

III. ABOUT the time of the insertion in the IRISH BUILDER of the articles on Taxation and Land Companies, the English journals—especially the *Standard*—were filled with letters on farming through large co-operative companies. Some years ago, *Vir Obscurus* placed these views before your readers in letters on Large and Small Farms. The *pros* and *cons* both on the side of the landlord and tenant have been ably argued in the Press.

It is well known that a single individual with capacity and capital who embarks in such large undertakings as those usually managed by a great company, would secure to himself the salaries paid to directors or managers. But how few persons have the pluck, enterprise, or capital, or who would invest their all in such immense designs. They would be considered as foolish as that man who placed all his eggs in one basket, where all may be lost by a single accident. To create such farms, many small proprietors can co-operate, where the loss may be felt lightly, as falling on many persons. There can be no doubt that more can be extracted from the land by agriculture, than can be obtained by only taking from the soil what nature produces, chiefly used to graze stock.

It is certainly true that man shall live by the sweat of his brow, and inferior soils may be brought (with cultivation) to produce food for man and beast. Hitherto most of the large farms have been employed in feeding stock alone, to purchase which, the largest portion of the capital is employed. Money is required for the wages of herds and overseers. To engage in producing more food for an increased stock, to purchase and provide shelter for cattle, to buy or hire machinery to cultivate the lands, to provide wages of more labourers, stewards, herds, &c., must require greater expenditure.

IV. It will take time to remove one of the greatest obstacles, viz., "the feeling of independence" which farmers have, on the change of becoming the servants of great companies, although the greater benefits must ensue to them. The large and educated farmers will necessarily become stewards and overseers; the small and uneducated must sink into the position of labourers, herds, &c. But it may be confidently asserted that a certainty of constant employment with good wages and increased comforts will eventually result, and that there will be a larger demand for both educated and uneducated labourers.

V. The owners of land, in letting it to such companies, must remember that they will prevent any competition in future, and will eventually create a fixity of tenure in letting to a large body, instead of to single individuals, whom it will be difficult to shake off.

Fixity of tenure is probably the only way by which sufficient capital could be expended in extracting more produce; very few of the land owners have, or could raise, the means, if they obtained the repossession of the soil. The question, therefore, with landlords would be: "whether to let in perpetuity to single individuals, or have co-operative companies who would pay a fair rent, or probably a higher rate?" but in all cases there would eventually be a greater fixity of tenure than at present.

VI. There is, however, a power which has greater interest in this subject than either landlord or tenant, viz., the community at large, who are the great consumers of the



produce both of land and labour, and whose interest it is to have every necessary or requisite both plentiful and cheap, and means to buy.

This power has effected a free trade in Great Britain by which all kinds of food are cheaper; but in effecting this by the reduction of these necessities of life, the produce of cheaper labour by foreign productions is admitted to competition, and that to encourage the manufactures of other countries, taxes have been imposed on the articles, which were not so necessary as food is to the labourers of these countries. Already several states are underselling in these kingdoms the manufactures of Great Britain. Reciprocity is but an idea, which the people of Great Britain will never be able to gain; unless the State is able to employ the labour, emigration will be the result.

VII. Can it be the duty of the State to encourage the loss of population, when there is plenty of employment in the cultivation of the land, and the improvement of the neglected pasture by great companies who would invest in the improvement of the soil?

These communities would deepen the ground by the use of improved ploughs, by the employment of steam and water in the making of the several requisites for cutting and threshing the crop, in preparing food for the stock, &c., the buildings necessary for the servants, and for the shelter of the stock, besides the requisite attendance in preparing the produce for the market. Another consideration will be the health of the population living more in the country than in crowded rookeries. L.

#### NARROW-GAUGE RAILWAYS, IRELAND, 1879.

WE observe that a further extension of this system has been obtained by the Ballymena and Portglenone Railway Bill, which has been sanctioned in Committee of the House of Lords. This makes a continuous narrow-gauge system in the county of Antrim of 60 miles, over 50 miles of which passenger and goods traffic have been carried profitably and safely for the past twelve months. Those who have travelled over these lines are loud in their praises of the ease and comfort of the carriages. The Ballymena and Larne Railway extends to the harbour of Larne, where a capital hotel (the Oldfleet) from the design of Mr. S. P. Close, architect, has been erected at a cost of some £15,000. This hotel will be found on trial second to none in comfort and elegance, coupled with that important desideratum, "economy in charges," and attention from the courteous manager, Mr. Simpson. The Scotch and Liverpool boats start from this harbour; the American State Line steamers also call every week for goods and passengers for New York. It is perfectly marvellous how the commerce of this port has increased within the past three years, due, no doubt, to the introduction of narrow-gauge railways, and the persevering energy of the proprietor of the harbour, J. Chaine, Esq., M.P., who is entitled to great praise for his untiring zeal in developing the resources of the country, and giving an impetus to industries hitherto unknown. Mr. MacDonald is engineer of the harbour, and Mr. W. Lewis, of 43 Dame-street, Dublin, engineer to this Narrow-gauge Railway System, which is at present confined to the north of Ireland, but which we hope to see soon extended over the whole country, as it seems (at a cheap rate of construction) to answer all the present and future requirements of traffic. As the 3-foot narrow-gauge seems to be the railway of the future, *it should be legalized* as a system, and the standing orders adjusted to meet each case. Thus if a Bill has been obtained to make a 5 ft. 3 in. gauge, liberty is sought (as in the Letterkenny) to alter it to a 3 ft. gauge, the report of the Board of Trade officers as to the advisability of this proceeding, and the rules and standing orders applying thereto, would vastly

simplify matters, and enable Lord Redesdale to deal with such application as with an ordinary Railway Bill. The Duke of Marlborough, when opening a section of this system, referred to the vast benefits in a national as well as local point of view that would be derived by the introduction of this system generally throughout the country, which has now been sufficiently tested to justify its extension.

#### THE CONDITION OF THE ART OF LINE-ENGRAVING.

AT the ordinary meeting of the Society for the Fine Arts, on the 15th ult., Mr. E. P. Loftus Brock, F.S.A., read a paper "On the Uses of a Collection of Ancient Engravings."

Mr. George Godwin, who occupied the chair, in introducing the lecturer, said:—Our business this evening is to hear from Mr. Loftus Brock a paper on the uses of a collection of old engravings. Mr. Brock, knowing the great interest with which I have long viewed the subject, and sharing the regret which I have long felt for the present condition of the art of line-engraving in this country, has asked me to say some dozen sentences preliminary to his lecture. The neglect of the art of line-engraving is indeed singularly great—so much so, that there are now very few eminent professors of the art in England. We have lately heard much of the revival of etching, and we have many admirable professors of that beautiful art amongst us, notably Mr. Seymour Haden, whose works are all exceedingly fine, and many of them, I have no doubt, well known to you. But etching is a very different thing from line-engraving. Etching is a mode of production which is itself the means of showing the artist's own drawing, but it is not the best means of reproduction—of setting before thousands the work of another—of enabling thousands and hundreds of thousands to enjoy that which, but for proper reproductions, would have been known to but a few. For that purpose, there is, I venture to say, no art equal to that of line-engraving—that art which has made Michael Angelo, Raffaele, and Leonardo da Vinci household words to millions who have never seen any of the works of those masters, and the great majority of whom never will see them. At the present moment, in England, mezzotint, stipple, woodcuts, lithography, photography, the autotype, the photogravure, and many other rapid and cheap means of reproduction, serve to satisfy the demands of the public, and the result is that publishers of engravings—who are now very few in England—are afraid to undertake the cost of such works of line-engraving as those I have mentioned. And in this connexion I think it will be admitted that but for the persistency of the Art-Union of London in producing and issuing a large engraving (and sometimes more than one) in each year, the art of line-engraving would positively have died out in England. The *Art Journal* has, I am bound to say, done a great deal in that respect (and in other matters, too), which has not been so fully recognised as it might and should have been; but the engravings of the *Art Journal* have necessarily been less important than those to which I have alluded. The cost of line-engraving is very considerable—many of you will be surprised to learn how considerable. I can give you an instance—that of "The Meeting of Wellington and Blucher," admirably engraved for the Art-Union of London by Mr. Lumb Stocks (whom I am very glad to see present this evening), after MacIse's picture in the Royal Gallery at the Houses of Parliament. The engraving of that work, and the right of engraving, cost £3,600, and the paper for and the printing of the copies cost another £3,000, so that, to produce all the copies issued, £6,600 were spent. Very nearly as much was spent on the companion engraving of "The Death of Nelson," executed by Mr. Sharpe. Such being the case, fine impressions of good engravings are necessarily costly when pro-

duced in the ordinary way of commerce; but then it should be remembered that the possession of a fine engraving is the next best thing to the possession of the actual work of which it is a translation—and that this fact is now being recognised will be known to those who have watched recent sales, and noted the high prices obtained for good engravings. What is desired is to lead the public to appreciate the beauties of this art of line-engraving, so that there may be such a demand for specimens of the art as may induce publishers to give commissions to engravers.

Mr. Brock then read his paper (which we give elsewhere).

Mr. Lumb Stocks, R.A., said he should esteem it a great privilege to take that opportunity of thanking Mr. Brock for his very interesting paper, and for the able way in which he had set forth the uses of engravings. Some of the ways in which engravings might be of use had never, so far as he (Mr. Stocks) was aware, occurred to his mind—probably because he was so fully engaged in the actual work of engraving that he had little time to think of the many and varied uses to which the art could be put. Engraving was an invaluable assistant in the work of education. The man of taste was more attracted by the beauty of the art than by its practical value, but to the latter quality the antiquary was much indebted for the information it gave him as to buildings, &c., which had been swept away.

The chairman said he was quite sure that all present would agree with Mr. Lumb Stocks in that expression of thanks to Mr. Brock for his interesting paper, illustrated as it was by the large collection of engravings hanging on the walls. He (the chairman) was exceedingly glad that Mr. Brock had referred to the very remarkable collection of views of old London, belonging to Mr. Crace, and now on view at South Kensington, because he feared it was not known as it should be, or it would be attended by more persons than had hitherto visited it. He hoped that arrangements could be made whereby Mr. Brock's collection then in that room could remain there for a few days, in order that the members of the society who were unable to attend that evening might have the opportunity of seeing it. The trouble that had been taken by Mr. Brock in removing so many engravings from their mounts, and in hanging them up in that large room, deserved to be compensated for in some measure by the collection being inspected by as many persons as possible. Some seven years ago it was his (the chairman's) privilege to address a few observations to the society upon the condition of the drama, and those remarks led to a movement, which was still going on, and which, he hoped, would before long result in giving to the public at any rate one theatre not wholly controlled by the prevailing popular taste, and one where the highest works of dramatic art could be represented. It would, he felt quite sure, be a great reward to Mr. Brock if in like manner what had been said that evening should direct general attention to the beauty of line-engraving in the highest style of the art, and so provide that public opinion and that desire for the purchase of line-engravings which would enable publishers to spend money on line-engravings with something like a fair prospect of return upon the outlay. If any one asked what was now being done in England to illustrate for posterity the part which we had borne and which were continuing to bear in the world's history, he was afraid we should have to admit that very little of a high class was being produced. He begged leave to second, most warmly, the vote of thanks to Mr. Loftus Brock.

The motion having been carried by acclamation,

Mr. James Edmeston moved a vote of thanks to the chairman for presiding, and for the remarks with which he had prefaced Mr. Brock's lecture. With the permission of the Society of British Artists, who were the



present tenants of the Gallery, and who were always most courteous and kind, he had no doubt that Mr. Brock's collection of engravings could remain on view for a few days.

### THE MOORE CENTENARY CELEBRATION.

THE Centenary Celebration on the 28th ult. may be pronounced on the whole as a successful one. Having written so much in these columns of late in reference to Moore, and the daily Press having given ample details of the Centenary Ceremonial, it is quite unnecessary for us to publish any of the proceedings in detail particularly, being a professional journal. In more ways than one we have assisted in the Centenary movement, and in drawing attention to the claims of Moore. Now that he is honoured we are satisfied, though we are fully aware that some who have made a good deal of noise have done very little work. The services of some men have been ignored, and among them the originators of the Celebration, but it has been ever thus in the history of all popular movements. The silent worker is always forgotten, while the men with the loudest and strongest voices push themselves to the front. We trust that, if there are any surplus moneys left after the expenses of the Centenary Celebration are paid, they will be made to form a nucleus towards a fund for erecting a fitting statue to our National Poet. It is a moot question whether such a statue should replace the one in College-street, or be erected on another site elsewhere in Dublin. A fitting statue to the memory of Moore is needed to give completeness to the Centenary Celebration which has just taken place.

### THE WANT OF SWIMMING ACCOMMODATION IN DUBLIN.

WITHIN the last half century in Dublin—before the Liffey got so polluted with sewage and other foulness—the suburban sea-boards north and south in the immediate vicinity of the city were much resorted to by bathers of both sexes. At Clontarf and Dollymount there were a number of bathing-boxes for women; and at Ringsend, Sandymount, Irishtown, and other places further along the southern marine townships, like accommodation was provided. To some small extent, on the north side and on the south, bathing-boxes for women are still provided; but Clontarf strand, from Marino to Castle-avenue, is not an enticing or attractive bathing beach, owing to slimy deposits and coarse shingle. A quarter of a century ago, or before the railway embankment was constructed across the estuary at Marino, the strand at Clontarf afforded a very fair bathing area, but the condition of the place is greatly changed within recent years. Independent of the public baths in the city, which do not meet the wants of a large portion of our people, particularly those of the industrial classes, we have no bathing accommodation worth speaking of. There is needed, within a reasonable distance of the city, a place where open-air salt-water bathing and swimming can be carried on successfully. For many years in the present century there was a bathing-place on the East Wall, near the North Wall, called the “slip.” Clontarf Island, which is reached by a ferry in a few minutes from the “slip,” was also much resorted to by the young men of the city. The little

islet, however, of late years, has nearly disappeared, owing to a silting-up process, consequent on harbour extensions and improvements. The “slip” and island will soon disappear under the operations of the Port and Docks Board; but the Board have promised to provide a bathing and swimming-place in lieu of what they will take away under their new powers. We hope that this matter will not be lost sight of, for the working classes of the city are very ill provided with swimming accommodation.

The turning of the disused city basins into baths or bathing places was agitated a few years since, and we, in common with others, exerted our utmost to induce the Corporation and others to do their duty in the matter. The Corporation did not give a willing ear to the proposal, so the city basins have been lost to the public. Seaside bathing can, of course, be indulged in by many along the margin of the bay from Sandymount to Kingstown and further, as also at the North Bull at Dollymount. Suitable places nearer to the city are, however, needed, and some earnest effort should be made by our public boards in providing the want. A company or two could also be usefully formed for establishing baths or swimming places at convenient spots along the northern and southern margins of the bay. Some years ago there was a prosperous concern at Clontarf known as “Brierly's Baths,” to which there was a 'bus service to and from the city at different hours in the day. These baths were supplied with the salt water which was pumped in at each service of the tide. The house was well conducted, and proved serviceable to respectable citizens while it existed under the original proprietor. Seaside houses, at which baths were provided, were established towards the latter end of the last century at Ringsend, Irishtown, and Sandymount, and they continued down to our own time with more or less success. Dublin is most favourably situated for seaside swimming accommodation within a short distance of the city—an advantage few cities possess. The Londoners are many miles from the sea, and the citizens of Glasgow require to go several miles down the river to reach the open sea, yet bathing facilities are very well provided for in both places through public institutions.

In London the royal parks are open at certain hours in the morning, and one or other of the lakes in these grounds is allotted to the working classes for bathing. As regards the sanitary bearings of the question, our people do not give the subject the attention it deserves. Without cleanliness there cannot be health, and frequent bathing is necessary. It is to be deplored that in many, if not most of our cities and towns, there is no swimming accommodation for men, and it is also to be regretted that there are as yet little facilities for women. It is as necessary for one sex to learn to swim as the other, and such a health-giving exercise as swimming would prove truly a boon to women if it were more indulged in than at present. Swimming is a life-preserving as well as a health-giving exercise, and we would that we could impress our young females of all classes with the sanitary and solid advantages to be obtained by knowing how to swim. There is no reason why women should not be as expert at swimming as men, if they desire to be so; but, apart from expertness, women should

not only in future learn to bathe or dip themselves in the sea, but to breast the waves by bold strokes and a self-consciousness of possessing a sustaining power. Those who are well-to-do can provide baths in their own houses, or can resort to the high-priced public baths; but the artisan and labouring classes of our cities and towns need the assistance of the State or of municipal bodies, so that facilities may be given them for practising such a healthy exercise as swimming. It is not the first time that we have earnestly appealed in these pages to our public authorities, and, as sanitarian and social reformers, we again appeal that more bathing and swimming facilities may be given to our people, for the purposes of cleanliness and health and the preservation of life.

### THE COFFEE-BAR AND RESTAURANT MOVEMENT.

IN our last issue we gave a notice of the coffee-bar movement in London, and we incidentally noticed the shortcomings of ordinary coffee-houses in general, both in London and Dublin. We pointed to the gin-palaces and to the methods by which they are made attractive by the aid of decoration, though the sitting accommodation is almost ignored in our present gin-palaces. It is plain if the coffee-bar promoters in this and the sister kingdom are to successfully compete with the modern pub. and restaurant, they must provide their customers with a good article—food and drink unadulterated, cleanliness and comfort, and other needs bodily and intellectual. There may be simple coffee-bars or houses established with success, as well as institutions embracing reading-rooms, smoking-rooms, lecture-halls, lavatories, baths, and the latter, if properly conducted, will supply a great want, and prove eminently serviceable in the path of social reform. We are glad to say that some of the coffee-palaces and bars in London are prospering, and we see no reason why they should not do so in this city. Within the last week we have visited the Dublin Coffee Palace in Townsend-street, and, on the whole, there is much to commend, although there is still room for improvement. The Townsend-street Institution has a very good lecture-hall, and there are weekly lectures delivered on suitable subjects. It has also reading and smoking-rooms, and a number of other rooms devoted to objects within the circle of workmen's wants. The food supplied is good and cheap, and here the cup of coffee or tea that cheers but does not inebriate may be obtained. The coffee-bar or counter in Townsend-street is almost on the same lines as the modern gin-palace counter, and if less ornate than some of the more ambitious public-house bars, its surroundings are more comfortable. The customer can stand or sit as pleases himself, and he can feel that he is at home for the time being. With the aid of popular educational lectures, musical and other entertainments, occasional excursions, and industrial investment societies in connection, the members and customers of the Townsend-street Institution and kindred ones can work harmoniously together for the success of a movement that is entitled to support, and which we have little doubt will eventually prove a great moral and social lever for the elevation of the working men of this country.



### OUR HARBOUR AND ITS IMPROVEMENTS.\*

THE primary object of all early engineering efforts connected with the Port of Dublin appeared to have been to provide a safe approach for vessels to the city. With this in view the Great South Wall was constructed during the eighteenth century. The Rivers Liffey and Dodder, discharging into the sea at the head of Dublin Bay, flowed over extensive strands laid bare at low water, and the channel cut by the rivers was used by vessels entering the port. The Great South Wall was built to shelter this channel from southerly winds, and also from the encroachment of sand. When completed, it accomplished to a great extent the objects looked for by its designers. Portions of the channel up to the city were still, however, very shallow, and attention was also drawn to a shoal beyond the extremity of the new wall, known as Dublin Bar. This bank stretched from the north side of the bay across the entrance to the harbour in the form of a hook. The deepest water for vessels was round the end of this hook, but across the bank, in a direct line to sea, there was only a depth of from 5 to 6 ft. at low water of spring tides. At the beginning of the present century many eminent engineers and naval officers were consulted respecting further improvements. Captain Bligh recommended a wall along the north side of the channel; Sir Thomas Hyde Page proposed a similar wall, and the formation of an island on the bar; while a proposal to construct an embankment or wall extending from the north shore towards Poolbeg emanated from the Corporation for Preserving and Improving the Port of Dublin, better known as the Ballast Board. Mr. Rennie, at that time considered the highest authority on the improvement of harbours, prepared an elaborate scheme, but he predicted little likelihood of much improvement on the bar. He expected an increased depth of 3 ft. of water as the result of an estimated expenditure exceeding £655,000. To provide a better approach he considered it essential to construct a ship canal from some point on the adjacent coast, where deep water might be obtained, and finally recommended this entrance to be made close to the present site of Kingstown Harbour. Mr. Rennie's estimate for this work was £489,734. From 1802 to 1819 the question of the improvement of the bar appeared to have been in abeyance. Probably Mr. Rennie's scheme, from the large expenditure it would have involved, and the smallness of the results anticipated, tended to deter the Government from advancing the necessary funds for any particular scheme. About 1819 the Ballast Board found themselves in a position to carry out their own project of a wall or embankment from the Clontarf shore. Its object was to protect the harbour on the north side from the encroachment of sand, to shelter it from northerly and easterly winds, and to direct the tidal and river waters in a fixed channel across the bar. Before, however, beginning this work an accurate survey of the river and bar was made by Mr. Francis Giles. Under the joint direction of Mr. Giles and of Mr. Halpin the engineer of the Ballast Board, the rubble embankment, now known as the Great North Wall, was constructed, extending about 9,000 ft. from the Clontarf shore, its extreme end being about 1,000 ft. north of Poolbeg Lighthouse. Over 5,500 ft. of this wall rose above high-water, the remainder being below that level, and the extreme 2,000 ft. only reaching on the average half-tide. During the first half of the ebb, the tidal and river waters running out of the harbour flowed partly over the submerged wall and partly through the harbour entrance, between its termination and Poolbeg Lighthouse. As soon, however, as the tide fell below the level of the wall, the water contained within the two great piers of the Port passed through the con-

tracted entrance at Poolbeg. The velocity of the stream was thus greatly increased, and a channel had been formed across the bar with 16 ft. at low water of spring tides, where, in the year 1819, there was only a depth of 6½ ft., and there was reason to believe that a still further increase might be looked for. As the improvement of the bar appeared to be due to the water discharged from the harbour during the second half of the ebb, any addition to the tidal capacity of the harbour below that level might be expected to produce a corresponding increase in the depth on the bar. Such an increase in the tidal capacity of the harbour was actually taking place by the lowering of the North Strand, the result of dredging ballast and the wasting away of the bank.

The consideration of the difficulties overcome in the improvement of the approach to the Port of Dublin naturally led to the inquiry, what were the dangers which beset the maintenance of the deep water channel across the bar? These might be briefly summarised as reclamation within and outside the harbour. Reclamation inside the harbour would be dangerous as an encroachment on the scouring capacity of the harbour. Reclamation outside would result in the reduction of the area upon which sand entering the bay was at present deposited, would tend to drive the low-water mark rapidly further out to sea, and greatly endanger the channel across the bar.

### ADVERSARIA HIBERNICA,

#### LITERARY AND TECHNICAL.

ECCENTRICITY or eccentric habits are common to many men, and they are mostly noticeable in connection with men of undoubted genius and ability in many fields. The word eccentricity for many years is taken as expressing more than it actually means, for, strictly speaking, it is a technical term meaning a deviation from a central point, or the state of having a centre different from that of another circle. Most mechanics know or have heard of eccentric turning as applied to the execution of certain work on a lathe whose gear is adjusted for performing it different from the ordinary method, and which is not possible to be executed through the ordinary process. In constructive mechanics eccentric gear consists of links, connecting rods, straps, and wheels, by which an eccentric or irregular motion is carried on through the machinery. Comparing one thing with another, then, we have the term eccentric or eccentricity applied to persons whose habits are deemed to be irregular, anomalous, or whimsical. There are numerous persons, however, who, strictly speaking, are not eccentric, but who are called so by men far less informed and by whom they are not understood. Simplicity of mind is scarcely eccentricity, and often this simplicity is owing to absence of mind, or not having at the moment what is commonly termed presence of mind. Men of studious habits, great thinkers and inventors, brooding over an idea and deeply absorbed in a certain train of thought, are mostly liable to be called eccentric men, particularly when they evidence a forgetfulness of what is passing in their presence. Clever men, literary and scientific, are often met and passed by their friends and relatives in the streets, and though addressed, pass on without noticing that they have been spoken to or recognised. The present writer, who, though he has not the egotism to think that he is clever, has often been oblivious to a person coming into the room and leaving it; and many times the "tea things" have been laid by the servant while he was sitting in the same room unconscious of the fact. We dare say if we told all the odd things that we have been guilty of we would be written down as thoroughly eccentric, and if our friends and the world at large ever think so we cannot help it. We have

often been so absorbed in thought, even when sitting down to a meal, that we have put salt into our tea instead of sugar, and *sweetened* our broth with sugar instead of salt. Perhaps these and similar acts are proofs more of absence of mind than of eccentricity. We have known men to be anxiously looking and searching for several minutes for a certain article, and using one hand in the search while the other grasped tightly the very object they were looking for. We have been guilty of the same lapsus. We have been asked to hand round a certain condiment at table, and have responded by giving an entirely different one, and this same unconsciousness arose perhaps from our habit of thinking of things distant or apart. In volunteering or on being asked to cut a slice of bread at table for another, we have cut the slice, but reserved it for ourself, handing the loaf in lieu to the person who was waiting for the former. The above habits may be odd and they are common to many men, but in our opinion they are not, strictly speaking, eccentric habits. They are certainly irregular and against what is called etiquette, but they are far from proving that a man has "a bee in his bonnet," or that eccentricity is the high road to lunacy. We have in our experience known persons who have affected eccentric ways, and they belonged to a class of people who were destitute of any genius or talent, but they got the notion into their heads that a little put-on eccentricity would make them shine as swans among the goslings. Jackdaws are ingenious betimes, and often amusing rogues, but your man jackdaw dressed in plumes that do not belong to him is a sorry bird. The biographies of distinguished characters in the British Islands alone furnish numerous instances of men of so-called eccentric habits, — statesmen, prelates, authors, artists, architects, engineers, and sundry others, clerics, doctors, lawyers, military men, and civilians, &c. It would be needless to cite instances in detail, as names will occur to all generally-informed readers. The Rev. Dr. Barrett, the erudite vice-provost of Trinity College, Dublin, who died in 1822, has often been mentioned as a most eccentric man, and many are the anecdotes told of his odd ways, — some true, but, we fear, others manufactured by the wits of the day. Dr. Barrett was certainly a scholarly and learned man, as his writings prove him to be. Some of his acts betray great simplicity and absence of mind, and some of his habits were certainly eccentric as eccentricity is understood and spoken of by the many. The following picture is a truthful one of the personal appearance of Dr. Barrett, who was nowise particular as to his costume, save on exceptional occasions. The doctor usually walked in the Fellows' Garden, the Park, or the courts of the College, encumbered with the weight of his entire wardrobe, consisting of a coat, vest, and breeches (brown in reality, but by courtesy black), a shirt (black in reality, but by courtesy white) hose, and no cravat. At home he sat constantly without the coat, the waistcoat being furnished with sleeves. On the occasion of a fellowship examination his appearance was very remarkable, and it was no easy matter to be convinced of his identity, for he never failed to wash his hands and face on such occasion, and vacancies occurred in the College almost every year, or at least every two years. This phenomenon, as a writer of the time observed, added to the assumption of a clean gown (which, however, he exchanged for the old and unctuous one on removing from the Theatre or Examination Hall to the Commons' Hall) improved his exterior so much that he might actually have passed for a handsome old man. "But the disposition of his locks," as our authority, who knew him well, remarks, "was not unlike the radiation of a bunch of radishes, and such curls as fell off (for his hair had in latter years but a precarious tenure) be always attached with hair-pins to the back of his head." As many of the present generation are unaware, it may not be unnecessary to state here that Dr. Barrett, who died in his 69th year, was buried in the little cemetery situated in the *old* village of

\* Abstract of paper read at Institution of Civil Engineers, London, May 20th, by Mr. J. P. Griffin.



Glasnevin, and in the same graveyard among other notorieties lies Dr. Delaney, the celebrated contemporary and friend of Dean Swift.

The late Thomas Crofton Croker (no relative to John Wilson Croker, of the Admiralty, and of the "Familiar Epistle" to Frederick Jones, of old Crow-street Theatre) is known particularly by one work entitled "Fairy Legends and Traditions of the South of Ireland," a book published half a century since. Crofton Croker, as well as Wilson Croker, was a writer in the magazines of his day, but the latter was one of the big quarterly reviewers and unscrupulous critics. The "Fairy Legends," &c., of Crofton Croker earned him for several years a considerable amount of popularity, although it is not generally known he was more of an editor to the volume in question than the writer thereof. According to Mr. S. C. Hall, who knew Crofton Croker for several years, he (Croker) was a calumniator of Thomas Moore after his death, as was Wilson Croker. In one of his foot-notes to his "Memory of Thomas Moore," Mr. Hall says that the best of the stories in the "Fairy Legends" was written by the able and witty Dr. Maginn, Joseph Humphries (a Quaker), Pigott (the late Irish Chief Baron), Keightley, and Charles Dodd, the compiler of the "Parliamentary Guide." Mr Hall himself was a writer of two of the stories in the volume. A poem entitled "The Lord of Dunkerron" (O'Sullivan Moore), which has appeared in several Irish publications of late years, was published in the "Fairy Legends." It seems strange to us that Crofton Croker should be a eulogist and calumniator of Moore after his death, for Croker in some newspapers or periodical articles, a few "cuttings" of which we have before us, treated of the "Juvenilia" of Moore, and speaks of him as "our great departed lyricist." Crofton Croker appears to have possessed an extensive library, and he was a member of several learned and literary bodies. After his death his library, like the libraries of many other authors, was dispersed, and his books passed into many hands. The present writer has the four half-yearly volumes of the *Anthologia Hibernica*, 1793-4, that were formerly in Croker's possession when he lived at Old Brompton, London. His book-plates are in the volumes, and over these plates are pasted those of the next owner of the volumes, Lord Farnham, K.P. A clipping of Croker's "Juvenilia" of Moore is pasted on the fly-sheets of the first volume of the *Anthologia*, evidently done by Croker himself, and the initials T. C. C. in pencil appear in another volume. On a slip of paper inserted between the leaves of first volume, pp. 386-7, there is an extract in Croker's handwriting from Skelton's satirical lines in 1598 on Cardinal Wolsey, quoted in the *Anthologia* at the above-mentioned page. Crofton Croker contributed occasionally some antiquarian matter to the last two or three volumes of the *Dublin Penny Journal*, when that periodical was in the hands of the late Philip Dixon Hardy. Well, death has been busy with nearly all the names mentioned in this note; all save Mr. S. C. Hall are now dead, and most of them died many years since. What is life? What is fame? Let us each and all endeavour to be just in our criticisms, deal by our contemporaries as we would wish them to deal by us, and then, perhaps, we may be enabled to leave the world in a better position by our labour than that in which we found it on our entrance.

In a recent note on centenarians we quoted an instance in which a man of the name of Collin or Collins died in the Earl of Meath's Liberties, Dublin, aged 137 years. The date is put down as December 18th, 1749. On January the 20th of the same year, we find, according to another authority, that one John Collier died in the Liberties at the same age. Evidently, though there is a difference in the name and the date of the

month, it relates to the one person. In desiring to correct the error, we doubt, at the same time, that the inhabitant of the Dublin Liberty, whoever he was, ever reached the age put down to him. Here is another *rara avis* of sweet Dublin city, upwards of a hundred years ago. February 17th, 1761. "Thero is at present at New-row, on the Poddle [*i.e.* the River Poddle], one Henry Golding, who has entered in the 20th year of his age, and measures only 27 in. in height." This little fellow was a regular Dublin Tom Thumb. On January 16th, 1754, we read of a strange character in these words:—"Died of a violent match of *funking*, Thomas Eclin, remarkable for his vivacity and drollery, and for eating of living cats, leaping into the river in frosty weather, and performing many shocking and unnatural tricks to please and excite wonder." Here are two items connected with great storms:—Dublin, August 7th, 1749. "On Saturday we had the greatest fall of rain that has been known for many years, which continued all night, attended with a violent storm. The rain was so heavy that upwards of forty sparrows who went to take shelter, were found in St. Mary's Churchyard, most of them dead, and in Mount Town one hundred and forty-three were found dead under some trees." On September 7th, 1762, it is recorded:—"Last night and this morning we had a violent storm. In the College Park [Trinity] fourteen large trees were levelled to the ground, some were torn up by the roots, and others broken in the middle, and carried to a considerable distance by the wind." The above items of these odd fellows, and the doings of the elements in Dublin may suggest a memory or two of old times in our city. H.

#### OUR ARTISANS AND MACHINERY.\*

MANUAL labour has undergone great changes in all departments within the last half century, and some more serious are looming, and will probably be witnessed ere the century closes. Machinery has changed the direction of labour in almost every branch to which it could be profitably applied, though there are a few special branches still in which thought, sensitive touch, and artistic and executive finish are deemed to be indispensable, and in connexion with which the utilisation of the unthinking machine receives no encouragement. Machinery is a cheapener if it can be kept constantly and profitably in action, but while it has a direct tendency to supply a want, it also creates other wants. It cheapens itself, it cheapens its products, and not rarely, owing to a variety of national circumstances, and some of which have recently become apparent, machine labour multiplied over a large area reacts upon itself, and uncomfortably upon its users and the general community. It is not to be inferred that we are covertly trying to disparage the mighty benefits that the workman as well as the master owes to machinery, whatever be its motive power, apart from physical energy and application. As effects must be traced to causes, both come within our purview, and must be touched upon, incidentally or otherwise, as our thoughts flow. Machines are multiplied yearly, and the direct results are organised and subdivided labour, or branches of trade, in departments where the single craftsman of our younger days was the general executive and all-embracing hand in respect to a practical knowledge of all the subdivisions belonging to his distinctive trade.

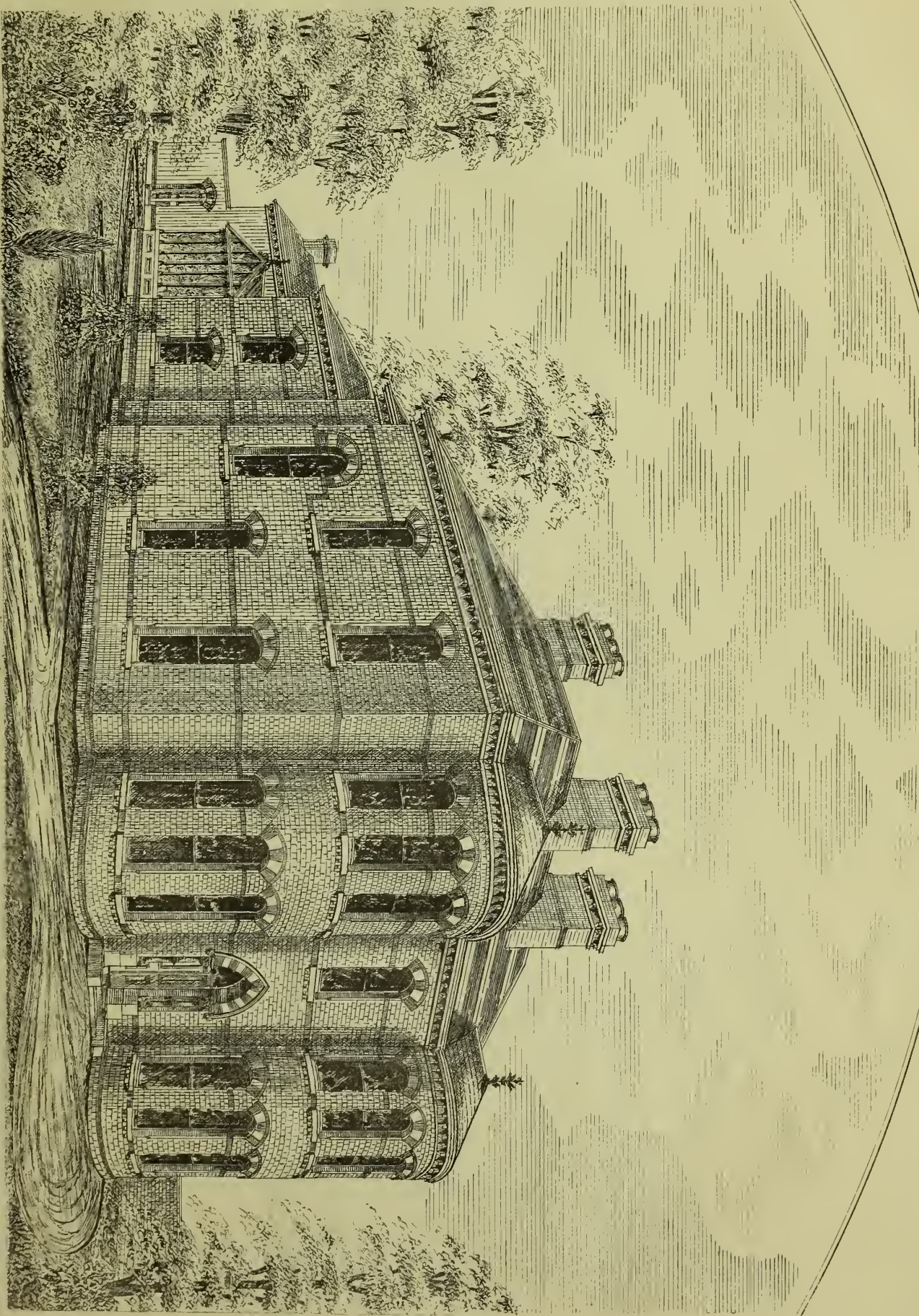
Our workmen now, who have a taste for information, have more book-knowledge than their predecessors, but in our large cities and towns, as far as relates to several distinct trades, our workers are but artisans in part, instead of artisans as a whole. This is a serious drawback to a class of men in a country said to be overstocked, and from which hundreds, from one cause or another, are often obliged to emigrate to distant

colonies. The English artisan,—indeed, we might write the British artisan of our large towns and cities—of to-day is seriously handicapped in several branches of trade when compelled to travel through country districts, or emigrate where he will have to compete with the general workman in his own branch of trade. The indicated evil may not be one of large magnitude in the particular case alluded to, still it is an evil for the time being, and will be, until the course of events equalises all workmen in respect to wants, by putting public needs on the same footing in foreign settlements as at home. A poor consolation, perhaps, to the bread-winner, who must live, and suggestive of that homely proverb which says, "Whilst the grass grows the steed starves." We know several branches of trade in London at the present hour (and they are yearly increasing) in which the workmen are engaged from one end of the year to the other doing the most common-place operations, requiring scarcely any thought, little skill, and they are neither suggestive nor ennobling, for there is nothing to afford an impulse, save the one still beginning, never ending sameness of toil and object from morning till night. An active, contemplative artisan-mind would soon sicken over such a deadening repetition of unthinking labour. Where a craving for drink, or bad habits, does not drown recollection of self, perhaps the music-hall or the theatre at night is the consoler in the mind of the workman. If the artisan is fond of aquatics or field sports, he has a look forward to pleasure; but, save once a week or on holidays, workmen in general have not much opportunity in our large cities for field exercise, for the ordinary summer evenings, after work and the evening meal are finished, leave but scant time to even the young and robust workman to hie away to the parks and suburbs, or for a row upon the river. Machinery, to be sure, is a lightener of labour, as well as a cheapener, and herein to some extent the artisan has a compensation if his mind is otherwise relieved by constant employment. The latter joy falls to the lot of a comparatively small percentage of our workmen. Even in the building trade, with which we are more intimately acquainted than others, there are constant shiftings and changing of employers for a large number of workmen throughout the year.

If the drift of our argument or object is not fully understood as yet by the reader, we will speak still more plainly and pointedly, by saying that the present condition of labour in the British Islands, on the whole, is not conducive to the improvement of handicraft, even if technical education were further advanced than it is at present. In many branches of subdivided labour our artisans are working as unthinkingly as the machines that may be in the same workshops, and far less steadily and unerringly, for it needs thought, acting in unison with the labour of the hand, to enable the workman to execute even commonplace work well; whereas the thoughtless machine, if properly adjusted, acts with precision in performing its set work. Precision, however, in progressive operations towards an end, does not mean precision in finish, and as a general rule machines do not finish work as a whole. The thinking mind and the feeling hand of the executive workman are necessary to completeness in all the arts. We may manufacture by wholesale, and cast works and objects as we would turn types out of a matrix, or bullets, bricks, or plaster enrichments out of a mould; but this is not skilled manipulation; and even in these and similar operations, commonplace as they are, the hand or hand-appliance finish of the workman is necessary to add completeness to the work. The machine never in itself improves upon its labour without the intervention of maker or user. Defective operations suggest improvements in construction, and the user improves upon the work by various shades of adjustment, and by keeping the principal performing parts of the machine in proper working order. A

\* From the Builder.





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hundred or several hundreds or thousands of hands less may be required over a stated area in consequence of machinery, but man, with the thinking mind and the ready and skilled adjusting or moving bone and muscle, is still the guide, the governor, and controlling power. As honey and poison may be extracted from the one flower, so the substances of life may be made the instruments of death. The children of our brain, carried out to their practical embodiment, may be our ruin, as well as our salvation, whether they belong to the world of mere literature or to that of the science and the arts. All great inventions are the advent of great reforms, or, rather, revolutions, and steam-power applied to machinery was the commencement of a vast revolution still violent with upheavings and inseparable from partial evils. We will not attempt just now to approximate the extent of the good and the evil, for both co-exist, and evil to some must always be associated with the progress of machinery, and its introduction into new branches of trade. One thing is certain, and more than one thing. The rapid progress of machinery has powerfully helped, with other auxiliary causes, to do away with the system of apprenticeship, to subdivide labour in trades, and to make skilled artisans less skilled and many-sided as general workmen. The organisation or subdivision of labour, though it might make a particular workman ready and expeditious in executing a part or piece of work belonging to his trade, has not added to the concentration of his thinking faculties and skill in the character of a general workman. The single work in a distinctive branch of trade, which is the outcome of several hands, no matter how well executed in its individual parts, must lack completeness in finish, though the want may not be apparent to the outsider or common observer.

It will be a sad day, in our opinion, for art when the duplicate-producing machine is received into favour in its domain. There is a magical and wonderful power still in printers type, but the compositor as a craftsman is but a poor power without "copy." Give the latter to him and mayhap in Roman letter it will revolutionise the world and lift a slumbering school of thought from a system of eclipse into a region of light. Give to our British workmen more food for practical thought, which can only be done by giving a more practical education. Stop at once your minute sub-division of trade; it may be profitable to large speculating manufacturers, but it is dwarfing the intellect of workmen, and it is unmistakably injuring handicraft by making the workman less useful, less experienced, and certainly less thoughtful and skilful as a whole, than he was in bygone years. A watch is a neat and compact piece of mechanism of its kind; but there is no distinctive character and individuality in it. It is a compound of many hands, and were not the maker's name or adopted figurings marked upon it, it could not be identified from a thousand and one of similar makers. Certain distinguished literary men are recognised by their style; and so are the works of painters, sculptors, and architects. The individual and complete workman, too, is known by his style, or rather by the conservative finish of his work; but what craftsman cares, even if he had the skill, and were allowed the time to boot, to improve the finish of the works of others, though a contributor himself? Handicraft of a verity, in many branches of trade, is at present emasculated, and we have pointed out some, if not the chief, causes. An artist who has no love for his art can never become a great artist. It is so with the workman; but while the artist can still exercise discretionary power, the workman has become a martyr to circumstances; his choice is becoming more and more limited, and his path is beset with numerous obstacles. A retracement, or a new departure is necessary, if we would maintain the olden glory of British handicraft, and particularly in its relations with architecture.

## BOOKS RECEIVED.

*Bevis's Builder's Price Book and Guide for Estimates.* London: H. C. Bevis and Co., St. Martin's-place, Charing-cross.

NOTWITHSTANDING several useful price-books published from time to time, we consider the present a very compact and yet comprehensive one, and one that will prove eminently serviceable to architects, engineers, surveyors, contractors, builders, workmen, and others. The author in his introduction makes a few judicious remarks, which are well put, and are worth remembering by those who are about to estimate. Estimates are governed greatly by locality and the price of labour and materials in different places. The variations are sometimes great, and sometimes very small, but in all cases these variations must be considered. The practical and experienced estimator is however generally alive to the differing circumstances as regards season and place, but the young beginner needs to be put on his guard. In all that relates to the building branches, workmanship and materials, Mr. Bevis's book can, we think, be relied upon as accurate. From the very commencement of the building to its finish this price-book will be found a safe guide. The very first section relating to machinery and scaffolding is a most appropriate chapter, and it affords a large amount of information to architects and contractors as regards plant and prices not to be found in other price-books. All or nearly all the indispensable information required in drawing up an ordinary estimate will be found included under the different sections in the present work. If the intending estimator has any brains, there is enough of food in the sections for him to take, to manipulate or digest as he likes. You cannot put brains all at once into a man's head, but you can put matter, or the making of mind. Mr. Bevis gives information, figures, and facts plentiful, so, when the young estimator has facts, his labour is made light. We can cordially recommend this price-book to our Irish constituency as one that can be as usefully referred to by members of the Irish building profession as by those of their brethren in the sister kingdom.

## CORRESPONDENCE.

## THE IRISH INSTITUTE OF ARCHITECTS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Referring to your very able leader in the IRISH BUILDER of 15th inst. on "National Architectural Representation and Opinion," I must, in common with many of my professional friends, own to a feeling of astonishment at the too evident apathy of the Irish Architects as compared with the Irish Civil Engineers. Descended from architects and builders, and brought up to the former profession—in which I have now attained to somewhat beyond middle age,—the council of the Irish Architects could never see that I was qualified for any position beyond that of an associate, because I held the post, in a public department, of engineer, although the council could not but be well aware that my engineering work did not amount to 10 per cent. of the entire duties. (As well might it be objected to that only an attorney could be a solicitor-general.) Of course I remained a very short time in the society, but sufficiently long to discover that a spirit of jealousy was in it, and a clique existed against which there was no one who cared to take the trouble to contend. Young men whom I had known as school-boys, whose fathers had been contemporaries of mine, were elected as "Fellows" (save the mark!), although their claims were wholly grounded on assisting in the production of some villa residences or perhaps ornate mortuary chapel in their masters' offices. Not wishing to be sarcastic or invidious, I will not allude to those who got their profession in the Drawing

Schools of the Royal Dublin Society, with a leavening of the taking out of quantities in some builder's or perhaps plasterer's office; but will say that, having acquired the right to the questionable use of the letters F.R.I.A.I., they were not slow in black-beaning or otherwise keeping their superiors from a similar honour, the consequence of which has been to deprive it of any value whatever, and the letters are seldom claimed excepting by a few of the juniors. I rarely heard a paper read on any subject, or left a meeting with a feeling that I had gained any knowledge. I certainly have occasionally seen some nice drawings exhibited. The last meeting I attended some years ago in Molesworth-street was, if I remember rightly, an open one. There were many friends of mine there who were not members of the Institute, and I had in addition to those the names of some in Derry, Belfast, and other towns, who wished to join either as members or associates. Being an associate myself, I could only be a proposer; some member or fellow should second the measure. I had much difficulty in getting such a help for my presumption; and when in course of time the names came on for election, they were all rejected. What wonder that such a society has not succeeded! It may be argued that the parties were not eligible; but of this there was no doubt. Two that I put forward as associates were building surveyors (both have since died), and four were architects who are now in about the top branches of that not to say flourishing tree.

Now, sir, having looked on this picture, we will, with your permission, look upon this. My architectural proclivities did not prevent my admission into the Institution of Civil Engineers, or into its club. I believe I can safely say that such a thing as black-beaning a candidate for admission is unknown. I have not observed (and I am not short-sighted) any evidence of one member wishing to convey to another that he is the better man. The council does its duty; and what it puts forward to the meetings, either of names or papers, is received *con amore*. The monthly dinner is homely, inexpensive, excellent of its class, and jolly; it leads to a social intercourse that calls forth conversation of a varied and most valuable nature; topics are discussed, opinions on scientific and professional subjects elicited and freely given, and the consequence is, that the Institution is rapidly increasing in prosperity. Members can introduce visitors, who are warmly welcomed, and find the right hand of fellowship extended to them, although there are no *fellows* in the society, and I trust such a very nonsensical title will never be found amongst its honours or awards. For some years past the Institution has had its club rooms in Stephen's-green, with a library of reference, small it is true, but rapidly advancing, and, though small, of great value; in it a country member can conduct his correspondence, or a Dublin member who may (like myself) reside in the suburbs. Now, all this is most refreshing for the Engineers, but as I said before, I, being brought up an architect, have a "hankering" after something as good or even better for Architects, and in the words of your leader would ask "Who stands in the way?" I am frequently in London; I am not a member of the Institution of Civil Engineers, still I have never had any hesitation in writing either my name or letters in their rooms in Great George-street, Westminster, because I could welcome an English brother in nearly as good at home; but I have always avoided 9 Conduit-street, as I might be asked where have the Royal Institute of Architects of Ireland their club, or where do they meet? but this was not always so. The architects were not heretofore so supine, so stagnant; they had their rooms and dinners, conversations, and papers. The last dinner of the Institute that I was at was in Dame-street, either at the corner of Fownes' or Crow-street (my first time for seeing a stereoscope). I can remember amongst those present, J. Benson,



of Sligo (afterwards of Cork), Jacob Owen, John Louch, G. Papworth, &c.; and amongst the juniors, W. F. Calbeck, C. D. Cuthbert, Fitzgibbon Louch, James Owen, W. Carmichael, R. H. Notter, of Cork, &c., all scattered more or less like Mrs. Thingamy's "Graves of a Household." It was a pleasant reunion—one of many in those days. There was a feast of reason, and the flow of bowl was merely sufficient to cause "good digestion to wait on appetite." For what aspirant could read with dignity, distinctness, or satisfaction a paper on, we'll say, "Hand-Railing," without that "belly timber" that we read of in "Hudibras"? But why refer to days that are gone, or find a fault without suggesting a remedy? Although many of the old stock have left us, enough remain to stir up the spirit which only lies dormant, or latent. Let those juniors who are now drifting into the "sear and yellow" get the aid of the parent trunk, take rooms in a central position, seek the helping hand and reciprocity of the outsiders, put the ballot-box and its black beans in the fire, have a monthly plain dinner, &c., at 5, with a cup of coffee at 8 o'clock; be not too critical on papers, (some men spell "rebate" "rabbit," and others "rabat," while all do not adhere to "centre" as the best etymology), have a good working council of men of standing, and we may yet have an Institute of Architects worthy of the name and our ancient citic.—Yours, J. S. S.

Dublin, May 20th, 1879.

[The letter of our esteemed correspondent is very suggestive; but, having spoken at length already, we prefer to wait a while to hear what others have to say. We will merely add here that we think there are very few architects in our midst who can take exception to the remarks of our correspondent which we consider pertinent and to the point. Taken in connection with other letters which we publish in this issue, it is evident that our article in last issue was called for in the interest of the profession and the country.—Ed. I. B.]

#### TO THE EDITOR OF THE IRISH BUILDER.

DEAR SIR,—As a member of long standing of the architectural profession, I have to thank you heartily for your excellent leader in last issue, on the chronic apathy evidenced by the Institute of Irish Architects, "so called." In referring to your last volume, I find in your issue of February, 1878, an article, headed "The Recent Conference of Irish Architects." I find a number of resolutions duly proposed, seconded, and recorded, of good intentions in regard to future work and action, but since that date to the present hour I have not heard a voice—no, not even a squeak—on the part of the Institute. Certainly, Sir, the functions of an Institute consist in something more than the holding of one meeting to register a number of resolutions and the appointing of a "standing council" to represent a stand-still movement. As you truly observe, the Royal British Institute in London and its kindred branches in the sister kingdoms, are during each of their respective sessions actively at work. A succession of weekly or fortnightly meetings are held during these sessions, valuable papers are read, &c.; but in Dublin there is no echo from the "standing council" or any other member on behalf of the body. Death, since February, 1878, has taken away two active members of the Institute in the prime of life—William Fogerty and Timothy Hevey. Such events in any other active and living Institute would have prompted the council to call a meeting for the purpose of moving a vote of condolence to the widows or families of the deceased architects, even if no other business had to be transacted. Perhaps the president or the chairman of the last meeting of the Institute could inform the profession and the public, through your columns, what is doing or intended to be done. May I appeal to the secretary, Mr.

G. C. Henderson, to courteously tell us what is to be the futuro action of the Institute, or if the council are really doing anything. The apathy of the Dublin architects is being noticed in the professional Press of the sister kingdom, and it is certainly a humiliating fact that must be acknowledged. I trust that an effort will be made before next autumn to organise a fresh body, if the moribund Institute does not in the meantime show some signs of vitality. Let us have some assurance that next winter there will be a session of the Institute, for, as matters stand at present, and have stood for many months, no other conclusion can be formed than—that the Institute of the Architects of Ireland has given up the ghost.—Yours sincerely, A DUBLIN ARCHITECT.

#### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—The profession (the right-thinking members thereof) are greatly indebted to you for the very able article which appeared in your last publication. I must confess that it is true in substance and in fact, although one should almost feel ashamed to avow. Nothing, however, is gained by deception or dissimulation. If your article fails in arousing the council of the Irish Institute to action, I must say the members thereof have no feeling. It appeals to their honour, dignity, honesty—to their very heart's core—and soulless indeed they must all be (including myself) if no response is made to infuse a soul "under the ribs of death." We pride ourselves in calling Dublin the second chief city in the three kingdoms, yet the manufacturing towns of England and Scotland are before us in the matters of architectural, archæological, and natural history societies.

Why is it that architects have no brotherly spirit or cohesion in this city? They have evidently the ambition to be distinguished and to obtain honours, but I fear that some have a desire to obtain them at a very cheap rate. It is easy to assume a title, but it is quite a different thing to become entitled to one. There is no royal road to fame or distinction without labour: knowledge must be acquired by industry. As for myself, I would be ashamed to assume a title or stick certain initials to the end of my name if these letters did not represent something real and substantial—something more tangible than the Institute of the Architects of Ireland as at present constituted.—Yours, H. A. R.

#### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I thoroughly agree with the spirit and substance of your opening article of Feb. 1st. The apathy of our Irish architects is something astounding, and the assurance of several of the council is equally astounding. Do they imagine that the public or the provincial members of the architectural profession have no memories? Is it possible that the council of the Irish Institute can think that nobody is taking note of their inertness? A "whip-up" for a dinner among a few members during the meeting of the British Association last year was but a poor make-believe effort for showing that the Institute was hanging together. It is due to the public and the profession in England, as well as Ireland, that some explanation should be forthcoming as to the affairs of the Institute. We have had enough of shams in this country for the last half century, and we do not want a repetition. Sham architecture is bad enough, but a sham Institute is certainly "a mockery, a delusion, and a snare." I enclose my card. AN ARCHITECT.

#### THE "TAWNEY" MOORE.

#### TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having expressed my doubts as to the statue (or should I call it "screen"?) at the corner of College-street being an adornment to the city as set forth in an article on our National Poet in a contemporary of yours, the fair author honoured me with a few lines,

in which she says, "Whether the statue does or does not adorn the city must be a matter of taste. Some people think Landseer's Lions in Trafalgar-square frightful, while others call them triumphs of art." I would wish to disabuse the minds of those who, like my correspondent, never saw the incubus under which we labour of the notion that it is merely a "matter of taste." Criticism on Landseer's Lions is certainly a matter of taste; but as well might we call the picture left on the mind's eye after looking at the statue on the arch at Hyde Park Corner a matter of taste, as the memory of a sight of the monstrosity in Westmoreland-street. Would it were anywhere else, even in the Phoenix Park, as described, it would not so frequently offend the eye.

We are not, as citizens, happy in our statues, although no worse off than our neighbours; but in the case of the calling, or scavenging-inspecting "black-a-moore," our poverty and not our will compels us. Some attempt should be made at the approaching "swarry" of the 28th to get funds for the removal of the thing which has not been improved by the scouring it got some months ago. If not admissible to the Phoenix Park, it might be granted a "local habitation" and change of name in the Cabbage Garden or Bully's Acre grave-yards; the botanical curiosity at the other end of College-street might be taken at the same time to keep it company. The memory of Sir Philip would be not the less green from its absence.

It must be a pleasing thought to those who honour the memory of the dead, that there are no hereafter visits permitted to this world of ours, and that our dear little poet can never be disgusted with the thing his admirers erected to his memory—a thing that can never do good service to either taste or culture. By the way, will any one inform me of the date when the "Epicurean" was a popular story book. I do not remember any cheap edition, but will enquire when next I take my walks in Cook-street or Flag-alley. JOHN S. SLOANE.

Clontarf, May, 1879.

#### CONICAL ARCHES.

In a paper by Mr. D. McH. Stauffer, C.E., in the "Proceedings" of the Engineers' Club, Philadelphia, on the South-street Bridge of that city, the author describes some novel points in the eastern approach to the structure. It is the ordinary practice in constructing arches on the curve to widen the piers towards the outer circle of the bridge, leaving the arches "right arches." In the case of the South-street Bridge it was thought, and very justly, that the work would be improved in appearance, and a considerable saving in masonry effected by making the piers of the same thickness throughout, and throwing the obliquity into the arches. The roadway was 55 ft. wide, and the centre line of the curved portion in which three arches were made was struck with a radius of 169 ft. 6 in., with an included angle at centre of 33 deg. 25 min. The arch abutments, therefore, formed tangents to the curve on plan. Both of the two piers were of course 55 ft. long, and had a thickness of 5 ft. 6 in. and 12 ft. high to springing. On the radial lines of the curve the piers were located, their sides being parallel thereto. Each of the three arches had a chord span at the inner end of 22 ft. 1 in., and at the outer end 32 ft. 9½ in., the rise of arch being 11 ft. ¼ in. throughout, and the crown and springing line being horizontal. Each arch, in fact, is really a portion of a cone; thus the line of crown of arch would coincide with the oblique side of the cone, while the plane of springing line would be parallel thereto, and cut the axis of cone at the smaller end of the arch. Thus the rise of arch at the smaller end was equal to one-half its chord span. As the crown and springing of the arch were parallel and coincided with slant height of the cone, the ends of arch



were not vertical, and had to be cut at right angles to the cone, though the angle made was so nearly a right angle that they were treated as circular arches. The smaller arch was regarded as a full-centered arch, and the larger as a segmental arch. Maine granite was used for the ringstones, and hard burnt brick for the arch proper. The brick ring was 54in. thick laid in cement mortar, and the bond was arranged so that the thickening of the mortar-joint was confined to the length of one brick, and the bond made to repeat itself in every eight courses. The consequence of the arch being treated at each end differently was of course that a winding skew-back was made to approximate to this by a series of slight drops or steps every four feet, and cutting the face of skewback to suit. This method of construction is at least bold and novel, if not the most artistic mode of dealing with a row of arches in a curved bridge or viaduct. Mr. Stauffer's paper is illustrated, and enters into details of the centring employed and the materials used.

#### NEW PRESBYTERIAN CHURCH, ARMAGH.

THIS new structure, the foundation of which was laid in January, 1878, was opened on the 22nd inst. It is situated on the Mall, and is accounted by some as one of the finest churches of the General Assembly. It is in the early Decorated Gothic style, and is capable of seating 800 persons. A full description of the building will be found in our number for January 15, 1878. The entire cost is put down at £10,000. The design is by Messrs. Young and Mackenzie, Belfast.

#### THE HEALTH OF DUBLIN.

THE death-rate in Dublin is still high, that for the week ending the 24th of May, representing an annual mortality of 34.9 in every 1,000 of the population. In London the death-rate was 21.6; in Glasgow, 21.0; and in Edinburgh, 23.5. Omitting the deaths of persons admitted into public institutions from localities outside the Dublin Registration District, the death-rate was 33.1 per 1,000. There were forty deaths from zymotic diseases. There were not many cases of measles, scarlatina, typhus, typhoid fever, or pneumonia admitted into the hospitals during the week, but the mortality from diseases of the respiratory organs was again excessive. Among the deaths we do not find any centenarians in the present return, but among 18 persons of 70 and upwards there were 5 octogenarians. The long and severe winter in Dublin, as in other places, helped to increase the mortality, but we fear the bad sanitary condition of large areas of our city must be credited with greatly assisting in keeping up a high death-rate.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE tenth ordinary meeting was held on the 19th ult., Mr. John Whicheord, president, in the chair. After the reading of the minutes of former meeting, the names of several gentlemen were announced as eligible for admission to the Institute. It was resolved that the past president, Mr. Charles Barry, be requested to allow his portrait to be painted and placed in the rooms of the Institute. A paper on "Bills of Quantities: their proper relation to Contracts" was read by Mr. John Honeyman, and a lengthened discussion thereupon ensued. The proposed arrangements for the forthcoming Sydney and Melbourne International Exhibitions have been finally completed under the presidency of H.R.H. the Prince of Wales. The next meeting of the Institute will be on the 9th inst., when Mr. E. I'Anson will read a paper on "The Recent Excavations of the Roman Forum."

#### THE DEAN DAUNT MONUMENT.

THIS very elaborate spiral monument has just been completed in Mount Jerome Cemetery, by Mr. C. W. Harrison, of Great Brunswick-street. The spire, capping, die, base, and plinth, are of white Sicilian marble, all richly carved. The sub-plinth and bottom course are of finely-wrought Wicklow granite, as is also the kerb. A massive iron railing encloses the burial plot. The whole structure stands about 12 ft. high, and on the front panel is the following inscription:—

ERECTED  
By the Members of his Family,  
In Memory of  
ACHILLES DAUNT, D. D.,  
Dean of Cork.

Born at Kinsale, August 23rd, 1832.

His Ministry of two and twenty years was marked by consistent earnestness in the service of his Master. Fully persuaded that the Gospel is the power of God unto salvation to everyone that believeth, it was his aim ever faithfully and simply to proclaim it. God honoured His servant's work in the several fields in which he was called to labour, especially in this city, where for eight years he exercised a prayerful Ministry.

He was taken home to rest, June 18th, 1878.

"Thou hast dealt well with thy servant, O Lord, according unto thy word."—Ps. cxix. 65.

It is scarcely necessary to add—although we feel bound to do so—that the work of the Daunt Monument is conscientiously performed, as is all work that comes from Mr. Harrison's hands. There are many monuments and memorials in Mount Jerome, some excellent of their kind and more very indifferent. There is no danger of Mr. Harrison's work being ranked among the latter,—rather it will hold a conspicuous place among the former.

#### CURIOUS PATENTS.

WE take the following extract from a useful and well-got-up little brochure on "Patents, Trade Marks, and Designs," by Mr. Archibald Craig, issued from the office of the *Bazaar, the Exchange and Mart*. The work in question, we may add, is a handy and practical guide to inventors and manufacturers, for securing protection under each of the above-mentioned heads:—

Many patents have been granted for very curious inventions, and many have been refused for still more curious things. The American (U.S.) Commissioners, I believe, were once applied to for a patent for a new method of saying the Lord's Prayer, and they certainly granted a man a patent for a one-tailed shirt. Another, during the Civil War, applied for a plough and cannon combined. The handles were to be guns, so that, if the ploughman were attacked, he wheeled about, fired his gun, and if the enemy fled, went on with his ploughing. One man, he can hardly be called an inventor, applied to the commissioners here for a patent for putting salt in water to boil cabbages. He possibly counted on getting a royalty from every house in which that homely but nutritious vegetable is used. Another asked for a patent for a frock coat, of which part of the tails were to hook back, and so form a dress coat—a very economical arrangement. The first patents, issued in the time of James I., were more in the nature of monopolies or privileges, for which a "consideration" was paid to shrewd Jamie himself. The very first patent of all was an exclusive privilege for drawing, engraving, and publishing maps of London, Westminster, Windsor, Bristol, Norwich, Canterbury, Bath, Oxford, and Cambridge. The next was for the privilege of publishing portraits of his Sacred Majesty. The third was for an unexplained group of wonderful inventions: for ploughing land without horses or oxen, making barren land fertile, raising water, and constructing boats for swift movement on water. One of the most curious patents ever applied for was for a new method of stopping a train by shooting at the engine driver from the guard's van, where a raised platform was to be placed, on which was to be erected an arrangement somewhat like an ancient catapult to fire pellets at the driver. I have not searched if the £100 was paid to the Government for the patent of this ingenious idea, but I should imagine not. In an article which appeared in *Chambers's Journal* some time since the following curiosities of patents were mentioned. One patent for breeches, at a date when trousers had not yet come much into use, described a mode of cutting out and making, to do away with all the inconveniences hitherto complained of, by the aid of elastic springs,

morocco elastic supporters, straps, buckles, &c.; another protects trousers from mud by a shield attached to the boot heel, which receives the splashed mud. Martha Gibbons, early in the present century, patented "a certain new stay for women and others, called the 'Je ne sais quoi' stay, which may be padded in any part when required for persons to whom nature has not been favourable," probably she meant "flat figures." George Holland had a mode of "making false or dummy calves in stockings." One patent was for one body of a dress to be capable of being altered to fit two figures; another to do away with garters, the stockings being suspended from a silver belt round the waist, another for brushing trousers. Even dolly is attended to, one patent among many is for making dolls able to sit up, probably by putting joints to their legs; another gives "a rocking motion to dolls' cradles," by an elaborate array of clockwork, eccentric wheel, winch, and connecting rod. Medicines and cures of all sorts were patented. An early patentee had "a hydraulic, which being placed by a bedside, causeth sweet sleep to those which either by hot fevers or otherwise cannot take rest." A powder of tobacco and herbs was so meritorious that "if one tablespoonful be struck for a dose up the nose as snuff, will cure various disorders of the hypochondriac and melancholy kind." One patentee has a thief-proof coffin, in which the corpse is secured by chaining or hooping it to a false bottom; another has a coffin made impregnable by a special application of "tapped and case hardened screws."

#### THE PEOPLE'S PARK, BLACKROCK.

THE Earl of Pembroke has, through his agent, J. E. Vernon, Esq., contributed £500 towards the completion of the People's Park at Blackrock, Co. Dublin. The contract for the planting of trees has been taken by Sir J. W. Mackey, Upper Sackville-street.

#### ARCHÆOLOGICAL.

THE concluding part of vol. 4 of the "Journal" of the Royal Historical and Archæological Association of Ireland has just been issued, and it embraces title-page and index. We have in it Mr. Day's paper "On a Hauberk of Chain Mail, and Silvered Badge, found in the Phoenix Park." Mr. W. F. Wakeman has a paper "On Antiquities at Cavancarragh, County Fermanagh." As a wind-up to his valuable series of papers entitled "Loca Patriciana," the Rev. J. F. Shearman supplies additional notes on SS. Patrick and Palladius. In the preface to the fourth volume of the journal we find the following:—"Of the labours of the Rev. J. F. Shearman, the 'Loca Patriciana,' now completed in this volume, will remain a lasting memorial. The very valuable genealogical tables, and the learning and industry displayed in the text and the accompanying notes, in the compilation of which almost every manuscript as well as printed authority on ancient Irish hagiology has been consulted, will prove of the highest interest to the students of Ancient Irish Church History." This work can be had from the author at the price of 18s.

#### NOTES OF WORKS.

The addition of lecture room, caretaker's rooms, offices, &c., are being carried out at Grosvenor Hall, Rathgar; Mr. L. Moore, contractor.

The premises of Messrs. W. Brunton and Co., Henry-street, are being re-built; Mr. George Tyrrell, contractor.

Alterations and additions are in contemplation at Gleneder, Howth, for Mr. G. D. Christie.

A new front is about to be erected to the premises of Messrs. Callaghan and Co., Dame-street; Mr. J. P. Pile, contractor.

Mr. George P. Beater is the architect engaged upon the above works.

TRINITY COLLEGE.—The Board of Trinity College has decided to build a histological laboratory for Prof. Purser, lecturer in the School of Physic.



## THE POSSIBILITIES OF ELECTRIC LIGHT.

The great public interest manifested for several months past on the subject of electric light, has led to several experiments and some inventions in respect to gas lighting as well as electric lighting. A Select Committee of the House of Commons have now reported upon the important question; and in respect to this evidence, the leading journal of London thinks that, although it does not hold out any prospect of the immediate realisation of the hopes of inventors, it at least points to the existence of almost infinite possibilities in the future. Sir William Thompson (says the *Times*), whose scientific attainments entitle his opinions to the most respectful consideration, even when they seem to be at variance with those of other recognised authorities, is, perhaps, the most sanguine of the witnesses yet examined; for he not only speaks of the economy of the electric light as a matter which is beyond the domain of controversy, but also expresses his belief that this light must be taken into general use at an early period. He looks forward to the employment of electricity not only as an illuminating agent, but also as a source of motor power; and he points to some hitherto unutilised phenomena of nature as agencies which can be rendered subservient to the production of this power in practically unlimited quantities. The Falls of Niagara, he tells the committee, may be made to drive dynamic machines, and conductors may be employed to transmit force from these machines to places where either illumination or the development of mechanical power is wanted. By the addition of such contrivances he believes that the Falls will ultimately become the chief source of light and of mechanical power over a large area of North America; for electricity produced in the manner described might be conveyed for hundreds of miles, and the manufactories of whole towns might be set in motion by it. If this indeed be so, it seems to follow that the advantage given to America by the Falls would be apparent rather than real; for it is manifest that the ebb and flow of the tides, or the force of the winds, might in like manner be rendered available; and it even seems probable, especially if some moderately economical method of storing force for use during periods of calm can be devised, that windmills near the places where light or power is required will be more profitable than the employment of copper conductors many miles in length. In either event, the prediction of Sir William Thompson, if realised, will enable manufacturing communities to regard the increasing consumption of coal, and the corresponding increase in its cost as it is obtained from deeper and deeper workings, with comparative equanimity. The mineral which was once so precious as a source of economy in manufacture bids fair to be degraded to an inferior and unimportant position.

Some conflicting evidence has been given with regard to the policy of rendering municipal corporations the purveyors of the electric light to their respective communities, and it is manifest that the question thus raised is one which must be regarded from many different points of view. As regards gas lighting and the supply of water, we have hitherto had experience of only two methods, by one of which corporations have been entrusted with the duty, while by the other private companies have been granted extraordinary powers, which, in most instances, they have misused to the detriment of their customers. If we take the case of gas, for instance, it is notorious that many companies sacrifice the interests of consumers, who cannot help themselves, in order to obtain a larger profit upon coke; and, as the manufacture of the best coke and the best gas by the same process have hitherto been found incompatible, the dingy illumination of our streets and houses furnishes one among many evidences that the

former product is more highly considered than the latter. Gas companies have so far enjoyed a monopoly which, besides being injurious to their customers, has tended to check invention and improvement with regard to the manufacture of the commodity in which they deal; and hence, in considering the prospects of the electric light, it is not sufficient to take into account the competition of gas as it now exists, and to ignore what that competition may possibly be made. It is rumoured that a very distinguished chemist who has already given proofs of his skill and resources in other departments of industry, is prepared to diminish the cost of the production of coal-gas by one-half, coincidently with a great increase in its illuminating power, but that he holds his hand until the pressure of threatened competition becomes sufficiently strong to compel the existing companies to seek his assistance. The spurt of better lighting which has lately been exhibited in Regent-street and in Waterlooad is supposed to be an indication that the companies are preparing to deal better with their customers in the future than they have done in the past; but even from this point of view, it has been of little practical value. The arrangements employed were such as to produce a temperature which would prove speedily destructive to the metal part of the burners, and which, therefore, would entail a periodically recurring and very considerable increase of expense, over and above the mere improvement in the quality of the gas and the increase in the quantity consumed, which were at first put forward as furnishing sufficient data for a comparison between this and the other methods of illumination. An improvement of more reality and of greater promise has for some little time been exhibited at the east or dining-room end of Westminster Aquarium, where five hundred gas burners of the old character have been replaced by two hundred new ones, which afford a light something like double that of their predecessors and of more pleasant and sun-like quality. This improvement is effected by introducing into the gas, near the burner, the vapour of volatilized naphthaline, a hydro-carbon which is contained by freshly made and warm gas in considerable quantities, but which is deposited in a solid form as the temperature falls. Up to this time naphthaline has been one of the few substances for which no employment could be found in the arts; and both gas manufacturers, who have to remove it as it is deposited in the mains, and the distillers of tar, who obtain it in large quantities, have looked upon it as a mere nuisance. It is now apparent that a material addition to the illuminating power of gas can be obtained by the restoration of this substance in such a manner that it is burnt before it can be again deposited, and it is said that the saving produced by the new lights in the Aquarium, when the whole building is supplied with them, will be as much as £1,500 a year. The practical difficulties which may possibly impede the general employment of naphthaline in domestic lighting can hardly be said to be ascertained; but the experiments hitherto made suffice to show that the methods of illumination with which electricity threatens to compete are not themselves likely to stand still, and that the present cost of gas lighting furnishes no certain criterion of what it may presently become. In these circumstances it seems inexpedient to commit the lighting of towns solely to corporations, who would often be regardless of progress by reason of the *vis inertia* natural to them, or solely to companies, who would be rendered obstructive by the possession of lucrative monopolies; and it is to be hoped that provision will be made, in all future legislation on the subject, for giving the most unrestricted scope to enterprise and competition, and for confining vested interests within the narrowest possible limits.

Whatever differences of opinion may exist among scientific or practical men with regard to some of the main questions at issue, there can be none that the House of Commons, by

the appointment of the Select Committee, has rendered a service to the public.

A question which does not seem to have been noticed, but which certainly deserves attention, is how far the electric light might modify the powers of endurance and the general sanitary conditions of persons who were much and long exposed to it. We know that sunlight, by virtue of its wealth in chemical rays, is a powerful stimulant to many kinds of vital action, and the electric light is almost identical with it in this element of its composition. The ordinary forms of artificial light are deficient in chemical rays, and it may fairly be asked whether continued presence might not be in some way hurtful as a source of too prolonged or too intense a stimulation. Nature is careful to withdraw these chemical rays at regular and stated periods, and the human race, which has not hitherto replaced them, is as yet without experience of the possible consequences of a literal and complete conversion of night into day.

## ON THE USES OF A COLLECTION OF OLD ENGRAVINGS.\*

The subject of ancient engravings has not received from lovers of art the attention which its importance deserves. We collect paintings, statues, medals. We are beginning to consider it desirable to make our homes artistic internally, and even externally. Dress, pottery, and many still more everyday matters, obtain some of the attention which they need, and it is a hopeful sign of the times that this is so. No apology is, I am sure, needed, therefore, for bringing before the Society for the Encouragement of the Fine Arts a subject which will amply repay all the attention devoted students of art can bestow upon it. We hear of the few connoisseurs of ancient engravings who are supposed to pay large sums for small prints. We hear of a plate with a broad margin being valuable, while one with a narrow one is supposed not to be so. A few extra lines on an obscure part of one engraving makes its market value considerable, while another not so distinguished is thought to be commonplace. All credit to men of means and leisure who have devoted both for the preservation of rare examples which now enrich our museums and aid research. However, these matters may have had effect in some degree to deter men of ordinary means from becoming collectors of old engravings, for collectors are undoubtedly few in number. This is abundantly testified to by the moderate price and the great numbers of engravings that remain to reward the collector. The public at large at present seem not interested to any great degree in engravings, old or new, and the modern art has not the amount of patronage that the skill of the few able engravers who remain to us so thoroughly merits.

Much attention has lately been given, however, to the subject of etching, and the encouragement shown to it is, I hope, evidence that were the claims of old line-engraving (to use a modern term) placed more frequently before the public, more interest would be shown, and good results would follow. I have chosen my theme purposely for the furtherance of this; and I propose, not any particular reference to old engravings in the abstract, but the uses of a collection, believing that in these utilitarian days a vocation which can be shown to be of actual service to our every-day life has greater claims upon us, deservedly, and greater chances of commanding itself to public favour, than any mere pleasant and harmless feeling which cannot commend itself to us on the plea of utility. These engravings have an educational value, deserving of all attention, which I now propose to show.

I intend my remarks for the numerous class who know but little of old engravings or their history. I propose to trace their his-

\* By Mr. E. P. Loftus Brock, F.S.A. Read at the Fine Arts Society, London.



tory very briefly, and then to proceed to point out some of their uses. The interest centred in the question, Where did engraving originate? has a great antiquarian charm. I must, however, not take time for its consideration, in view of the length of the subject before me. Let it suffice to say that, with the numerous incised monumental brasses constantly in the hands of art-workmen, and the equally large number of engraved cups and flagons ornamented with patterns of great beauty and intricacy, it seems almost as a matter of necessity that the effect of rubbings taken from these would afford some insight into the art of engraving, purposely to obtain copies of the work to judge of its effect. We find accordingly that the earliest engravings date so early as the commencement of the fifteenth century, when works of the nature referred to were common. Engraving, however, may be said to have become general only at the end of this century and the beginning of the sixteenth. It is, then, remarkable how numerous were the artists practising it in all parts of Italy, Germany, &c.; and, indeed, the time was remarkable. The new impulse given to human learning may well be styled the "Renaissance," and excite the wonder of men of this age. On all sides—in religion, in architecture, painting, sculpture, the study of the Classics, in the discovery of printing, in the development of literature—alike in all these, and in many more, the human intellect appeared to take a fresh accession of power. The results will live to the end of the world. Italy claims deservedly the honour of first notice for the number and the diversity of its artists.

At Florence, in the northern cities, at Bologna, Parma, Milan, and, lastly, at Rome, we find numberless artists at work. So numerous are these that their names even have not in many cases come down to us.

A collection of Early Italian works alone is of great interest, for we may trace the strivings of the workmen to master the new art. With much done with rough and hard outline, we find the work of artists in the truest sense of the word, and trace their grasping unskillfully, it may often be, to develop the details; and in the result producing designs worthy of our most careful inspection. We notice in many instances the contemporary transcript of some canvas or other produced by some painter whose name is now a household word among us.

In this constitutes one of the greatest charms of the early engravers. They reproduce to us the designs of the painters, and the engravings seem imbued with their spirit. We know that very often the painters superintended and corrected the plates. Further, the painters themselves were often engravers: of this more hereafter. As examples of Italian work, I exhibit several plates by Marc Antonio, Bonasio, Caravaggio, Guido, Salamanca, Æneas, Vico, Ghisi, the three brothers Caracci, Agostino Veneziano, and many others, with examples of later date, bringing down the history of the Italian school to the end of the last century.

The school of Germany deserves second rank, not only by reason of the numbers and proficiency of its engravers, but by chronological order. Indeed, if we include wood engraving, the consideration of which I am bound by stress of time to exclude altogether, it may be that the earliest engravings of Germany were somewhat in advance of those of Italy. Albert Dürer, the prince of engravers; Aldergave, his follower; Lucas Cranach, the master of 1466; Schongauer, and a host of others, show the interest with which the new discovery was followed in Germany. As specimens, I have taken at random, almost, some by the brothers Sadeler, Goltzius, and many more.

The Low Countries amply merit the third place on our list. Indeed, it may be closely questioned whether wood-engraving was first followed here or in Germany.

The names of the earliest engravers on metal are lost to us, and we are glad in prizing their works, to distinguish them as

the "Engraver of 1480," the "Master of the Shuttle," and others. Lucas Van Leyden, the friend of Dürer, like many other artists of the time, practised the engraving of armour and goldsmiths' work, and his beautifully-drawn and minutely-engraved plates are worthy of all the praise they have obtained. A century later, Rembrandt's works gave fresh impetus to the school of the Low Countries, and in the vast number of plates produced by him we can delight ourselves in his remarkable style. We have in him one other example of the frequency with which painters of high repute thought it not beneath them, but rather that they added lustre to their art, by practising equally that of the engraver. Van der Velde, Potter, Ruysdael, and other illustrious names are ranked among this school. In addition, the works before you are those of Ostade, Berghem, Merian, Breughel, Heemskirk, Cock, M. de Vos, Sauredam, and many others, with some of later date, to illustrate the art to the beginning of this century.

The school of France has many claims on the gratitude of print-collectors: for the artists of this school have produced a vast number of works of great beauty and diversity, while their character is very much unlike those of the other schools. This is more so in the later than in the earlier schools, since the influence of that remarkable impulse, the school of Fontainebleau, had the effect of introducing a certain amount of Italian feeling, which is readily traced in many of the earlier sixteenth-century art works of France. No country appears to have rejoiced more in the liberty of the new arts developed in her midst than this country, then reposing for a moment in an interval of peace. Although the number of early French artists were not few, their works are not common. It is different with those of later date. The works of Limousin, Leu, Millan, Callot, Bosse, Sebastian Le Clerc, Claude Lorraine, Andrieu, Stella, Nanteuil, Watteau, and a host of others, have rendered the French school illustrious, and particularly that of the seventeenth century, while we may still find among the living artists of this country some of the best professors of what I regret to have to call a declining art.

Were we to believe many Continental writers, England has hardly had a school of engraving. It is certain that its history has yet to be written in detail, and a very interesting theme it would be. A very short acquaintance with old engravings would soon prove the falsity of the statement, and would show there have always been engravers in England. I am willing to admit that the most conspicuous of these were foreigners, but on taking up their abode among us a certain individuality is apparent in their works, their styles being adapted to the requirements of their clients, and I maintain that we have a clear right to claim these foreigners as artists of the English school, so far as their English works are concerned. Simon de Passe produced in England many of his best works. His pupil, Payne, was an Englishman, as was also Faithorne, of whose engravings any country may be proud, who worked almost exclusively here. It would be strange were we not to include the German, Hollar, among our engravers, for this was the country of his adoption, and the place of his decease. Would that his reward had been in proportion to the benefits he has conferred upon Englishmen for all time, for we owe to him almost all we know of the appearance of ancient London, and of many scores of old buildings which have passed away. Dorigny did good work here, but he did not take up his abode with us, but it is different with Baron and Vivares, and some others. I am prepared to admit that there is too much evidence of the public taste for foreign artists rather than for those of our own country,—a taste which I am glad to say is now all but gone. I am also prepared to admit that the seventeenth-century works of our English artists are often poor and weak, and they rise seldom above the rank of book illustrators. Nevertheless, if

our school of line-engraving was thus backward for want of encouragement, it most worthily distinguished itself in the next century. Here, too, our painters were engravers as well,—the two arts went hand in hand. Hogarth engraved his own works most worthily, and we can readily trace how, in the midst of other occupations, his busy graver could not keep pace with his prolific designs. Grignon and others came to his aid, and the artists worked side by side. Strange has produced some of the best engravings that Europe can show. Woollett's landscapes are simply superb, and his boldly-cut shadows show results that commend themselves for admiration at all time. Virtue's graver embraced all classes of artworks. Before speaking of the engravers of a somewhat later period, a style peculiarly English demands more than a passing word. I am not going to speak as a special pleader on behalf of the discovery of Mezzotint engraving by Prince Rupert, for I think the weight of evidence is against it. Nevertheless, in no country has this style become so thoroughly adopted as in England. We possessed a large number of native artists who appeared to have worked almost exclusively in this style, and the result is a magnificent series of works of great power and beauty. In these we have lively portraits of the stately ladies and the great men of the latter part of the seventeenth century, while their number is continued through the whole of the eighteenth century. The works of Reynolds and Gainsborough, and later the beautiful faces and figures of Sir Thomas Lawrence, are reproduced with a delicacy and softness deserving of all praise. This essentially-native style is still flourishing among us in all its beauty, and with much more elaboration of detail than we observe in the early works, and this we owe to the skill of the artists who yet remain to us. Would that public patronage would afford encouragement to the more laborious style of line-engraving. The engravers I have named are sufficient to show that the art was in a flourishing condition in the early part of the eighteenth century. But the later part witnessed a great increase and change by the appearing of artists who produced works of great softness and delicacy. The admirable works of Bartolozzi stand foremost; Ryland, Cosway, and many others followed in the same style. The commencement of the nineteenth century opened with the works of these worthies well before the public, and in deserved estimation. My limits forbid my bringing before your notice any work of later date than the close of the eighteenth century, and references to the admirable engravers of this present century, are, therefore, outside my purpose.

Of other schools, I exhibit a few Spanish engravings, showing that there was sufficient native talent to have produced an excellent school of engraving. However, their works are not well known, and they appear to have arisen at intervals, apart from one another, so that it may well be doubted if a continuous school of engraving ever existed. I exhibit one work of Rubiero's, and a few of much excellence executed towards the end of the eighteenth century.

I will now proceed to note some few of the uses of a collection of old engravings. One of the uses is to bring the best works of the old masters to our knowledge. Indeed, there is no method of obtaining their designs except by engravings. Works more or less modern have ably illustrated the galleries of Paris, Italy, Germany, and England, but apart from these, we are dependent entirely upon ancient contemporary engravings for a knowledge of the rest of the productions of the old masters. Their numbers are so vast that we can appeal to them for evidence in many ways, and may bring to our homes illustrations of many a grand work far away on the Continent, or in some closed private collection. There is hardly any painting of note that has not been engraved more than once. The result is, that the authenticity of almost every painting is well guaranteed



by old engravings. We have seen recently at South Kensington the "Vierge aux Candelabras," by Raffaele, and near it a large collection of engravings ably brought together, and by various alterations of detail, suggesting that there may be more than one copy of this picture. The like could be done again and again. The value of engravings as transcripts of paintings is well before you, for all here are of contemporary date, and show the works of Romano, Raffaele, Michael Angelo, of the artists of France, of Germany, and of England. Another point deserves our notice. Many of these works are the productions of the painters themselves. Here are some plates engraved by Guido Rene. Here are examples by each of the three brothers Caracci, by Dürer, by Rembrandt, and by many others of the old masters, whose works are priceless on canvas, but so well within our reach on paper. Another point must be referred to. These engravings were of necessity multiplied in large numbers. They are on apparently fragile paper. This material is, however, one of the most indestructible in existence. Keep it from fire and water, and it is so for all practical purposes. The engravings before you are all from 350 to 370 years old, and their condition is fairly good. The canvas once destroyed has no record unless copied, beyond what the engravings furnish; and an interesting collection might be formed illustrative of paintings that have entirely passed away from us. Here as a specimen is Titian's Peter Martyr, destroyed by fire at Venice a few years ago. Engravings have many illustrations of the devotion and fondness of their authors for their work beyond what is shown on its face. Let us note this admirable plate by J. Sadler, with its inscription stating that it was produced at the age of nineteen. It is a work full of promise. Here is a fine engraving by Bartolozzi, produced when he was seventy-five years of age, and here one of his last works, produced at the age of eighty-two. It is a remarkable monument of human patience and labour.

(To be continued.)

#### DOCK GATES.\*

THE author commenced by defining the general features of a pair of gates and their surroundings; then passed on to the strains to which a gate was subject, and gave a formula for the pressure per unit of length. Examining the mutual action of the gates on each other, he stated that in practice this was liable to vary, and that three cases must be considered:—First, the gates might be constructed so that when under pressure the meeting faces of the mitre-posts bore fair and true against each other, and distributed the mutual reactions uniformly throughout the width of the meeting faces. Secondly, foreign substances, such as chips of wood, might intrude, or the gates might wear and become a little too short, causing them to nip on the dock, or inner edges of the meeting faces. Thirdly, the gates might be a little too long, in which case they would nip on the outer edges of the meeting faces.

The magnitude and direction of the primary forces acting on the pair of gates were next investigated, and it was shown that a point could be found on the centre line of entrance, the distance of which from any point on the back of the gate was proportional to the resultant of all the forces acting on a section taken through the gate at the point measured to. It was also shown that, in practice, the line of position of these resultant forces in most cases corresponded with the arc of a circle drawn through the centre of the heel-posts and of the meeting faces of the mitre-posts. The effect of nipping would be to transfer this arc from the centre to the edge of the meeting face at which nipping occurred, and consequently to proportionately increase or

diminish the bending moments on the gate. The effect of direct compressive stress combined with bending moment, when applied to various forms of structure, such as were common in dock gates, was then examined, and methods of finding the intensities and distribution of stress at a cross section by means of diagrams were described for three different forms of wooden gates, viz.: 1st. When the gate was formed of rectangular wooden beams. 2nd. When it was built in divisions corresponding to the voussours of an arch, and depended entirely on the arch-form for its stability; and 3rd. When the gate was built in divisions as in the second form, but of less curvature, and required the assistance of the supplementary connecting pieces, which must be taken into account when computing the strength. Looking at the general features of the last-mentioned gate, the first impression was to regard it as a form of bow-string girder, but further consideration would show that this could not be, as there was nothing to transmit the longitudinal stresses from the "bow" to the "string," the transverse bolts being obviously insufficient for that purpose. When, however, the action of a bending moment caused the gate to deflect, the transverse bolts, though allowing the voussours and connecting pieces to slide on each other longitudinally, would maintain them laterally in their relative positions; consequently they would bend through similar angles, and the total moment of resistance would be the sum of the moment of resistance due to the voussour plus the moment of resistance due to the connecting pieces.

In the case of trussed beams, the effect of direct compressive stress combined with the bending moment had to be considered, when applied to a rectangular wooden beam supplemented by wrought-iron truss rods. To illustrate this the simplest form of truss might be taken, namely, that consisting of a rectangular wooden beam supplemented by two wrought-iron truss rods and a king-post, and it might be assumed that the king-post was inelastic and of infinite strength. It would occur to the observer, that the stresses on the different parts of such a system might vary indefinitely, according to the method of attaching the rods to the beam, and also to the extent of initial stress put upon the rods before the system was subjected to extraneous pressure. Certain conditions must therefore be assumed before an investigation of the stresses on the different parts could be attempted. If strength only was considered, the best adjustment appeared to be that which, when the system was under pressure, caused the whole bending moment to be borne by the truss rods, and left the timber over the king-posts entirely free from transverse strain. Formulae for the stresses on the various parts were then given, and it was demonstrated that if the truss were cambered or allowed to sag, then the stresses would be increased, and the best condition of adjustment was the one first assumed. To attain this condition, if the beam was continuous from end to end, the system when under pressure, must have a certain deflection, viz., one-fifth of that which the beam would have if there was no system of trussing. The condition of the system when the pressure was removed was next examined, and formulae were given for ascertaining the camber which it would assume. The intensities of stress on the various parts were also investigated, formulae for the same being given, together with methods of showing those intensities by diagrams. A similar analysis was also made supposing that no working deflection was allowed.

In the case of wrought-iron gates, the point to be considered was the effect of direct compressive stress combined with bending moment on a wrought-iron girder composed of flanges connected by a centre web. The position of the neutral axis was investigated, and methods by diagrams were described; first, for finding the intensities and distribution of stress on any given section; and secondly, for designing a section of such

proportions that the intensity of stress on any fibre should not exceed certain limiting intensities of tension and compression. When the method of finding the principal stresses, as explained, was considered in connection with the effect of a bending moment, there could be no doubt but that, theoretically at least, the most advantageous form was that on which the water-pressure produced no bending moment, that was to say when the line of the centres of gravity of the cross sections corresponded with the centre line of the gate, and when the centre line of both gates formed together one continuous arc of a circle extending from centre to centre of the heel-posts, and passing through the centre of the meeting faces of the mitre-posts. The author showed that when this form was departed from the increase of metal would be rapid as the gate was flattened, nor would any appreciable reduction in the cost per ton occur, until the gate was reduced to the absolutely straight form, when the increase of metal would, in the author's opinion, more than counterbalance the decrease in price supposed to arise from the use of unbent plates.

As regarded rise, Mr. Bramwell had pointed out that the most economical gate was that in which a pair of gates when shut formed a continuous arc subtending an angle of  $133^{\circ} 56'$ , at the centre of the circle of which the said arc formed a part, thus making the rise of the gates equal to the width, from centre to centre, of the heel-posts, multiplied by 0.32958; or in round figures, when the rise was equal to one-third the span.

Hitherto no notice had been taken of the variations of stress due to the alteration of form when under pressure. Any analysis of such variations must necessarily be complicated; and it appeared to the author that it would be useless to attempt to arrive at any general form for such investigation, as every gate would have its own individual peculiarities, which would inevitably vitiate the result. Practically, if the strength of a gate was calculated on the bases of the extreme cases of nipping at the inner and outer edges of the mitre-post, the increased stresses due to alteration of form under pressure might be safely ignored. Setting aside theory, it must be remembered that the most economical was not necessarily the most advisable form for a pair of dock gates. The gate was the most important part of a dock, but it was a comparatively small item of the cost, and its outlines should be designed with a view to the general convenience and requirements of the situation, rather than to the structural economy of the gate itself.

#### FORTHCOMING ARCHÆOLOGICAL MEETINGS IN BELFAST.

WE have often suggested that our Irish archæologists, architects, naturalists, &c., should have their annual meetings and excursions, like their brethren in the sister kingdom. We are glad to hear that the next meeting of the Royal Historical and Archæological Association of Ireland will be held in the northern Athens. On the 29th ult. a preliminary meeting was held in the Belfast Museum, presided over by Dr. Charles Purdon, attended by several interested in Irish archæology, and arrangements were made for giving the association a suitable reception. It was resolved that every effort should be made to render the approaching visit pleasant and profitable. The secretary was empowered to correspond with the committee of the association, in order to ascertain the members that might be expected as visitors, and the precise day to be fixed for the meeting, which will take place in the ensuing month of July. It was resolved that arrangements be made during the visit of the association—independently of the business to be transacted—for a public meeting in connection with the Belfast Natural History Society and the Belfast Naturalists' Field Club, at which papers will be read and objects of antiquarian interest

\* Abstract of paper read at Institution of Civil Engineers, London, by Mr. A. F. Blandy, on 27th ult.



connected with the neighbourhood exhibited. It was also agreed that, if possible, excursions be arranged during the week of the visit. It was also proposed that a *conversazione* be held. A committee was appointed with power to add to their number.

#### HOME AND FOREIGN NOTES.

**THE GRAVE OF THE MOORE FAMILY.**—Although the house where Thomas Moore was born was generally known for long years by our citizens, it was not known generally that Moore's father and mother, with other members of their family, were interred in the old churchyard of St. Kevin in this city. The following is a copy of the inscription on the stone at the grave of Moore's father:—

"Gloria in Excelsis Deo."

Sacred to the memory of John Moore, Esq., formerly Barrack Master of Island Bridge, in the County of Dublin,

Who departed this life December 17, 1825,

Aged 84 years.

Here also is interred Anastasia Moore, alias Codd,

His beloved wife,

Who departed this life May 8, 1832,

Aged 68 years.

Also six of their children, who died young.

Also their beloved daughter Ellen, who died

February 14, 1846.

Deeply mourned by her brother Thomas Moore,

The Bard of his beloved country,

Ireland."

**PLANTING WASTE LAND.**—Some time ago an attempt was made in the Champagne, France, to make some use of a portion of the numerous waste lands by planting it with fir trees for the sake of the resin that might be obtained from them. One of such plantations, laid out about nine years ago, is now giving most satisfactory results. The total cost for purchase of land and expense of planting was £4 per acre, of which two-thirds was paid for the land and the remainder for labour and stock. At the end of thirty-five years this outlay, with accumulated interest due, would represent about 1,400 francs per hectare, and the net profit, calculated at the rate of one franc per tree, would at the same date amount to 2,150 francs. To this must be added that the taxes on such reclaimed waste lands are extremely low in France, and persons bringing such lands into cultivation are excused three-fourths of the taxes due for a period of thirty years.

**THE PARKES MUSEUM OF HYGIENE.**—This museum, temporarily located at University College, London—of which her Majesty the Queen is patron, and Sir William Jenner, chairman of committee—will be opened to the public on and after the 1st of July next. The opening ceremony will take place on Saturday, 28th inst., when a meeting will be held in the Botanical Theatre, under the presidency of the Right Hon. R. A. Cross, M.P., Secretary of State for the Home Department. Although the museum is quite in its infancy, it contains a very valuable collection of objects and apparatus relating to every branch of sanitary science. As the only institution of its kind existing in London, it will supply a very great want to those in need of facilities for obtaining a practical knowledge of sanitary matters, and professional men, employers of labour, manufacturers, artisans, and other persons, both men and women, will be able to study at their leisure those subjects in connection with sanitary arrangements in which they may be interested, and the benefits of the museum will, therefore, be extended to all classes of the community.

#### TENDERS.

For the main drainage of Dalkey:—

George Dixon .. ..	£2,999
James Murphy .. ..	2,947
Joseph Long (accepted) ..	2,800

#### TO CORRESPONDENTS.

**ARCHITECTURAL REPRESENTATION.**—Elsewhere in our columns will be found some letters which speak for themselves. Correspondents whose letters are not inserted in this issue will most likely find them in our next. The Irish Institute is certainly challenged to give reason for its inactivity, indeed we might say its existence.

**ASSISTANT SURVEYOR.**—We are still willing to assist, but those most intimately concerned must aid one another.

**W. H. B.**—He is no relation, as far as we are aware. Though of the one name they belong to different provinces.

**MECHANICS' INSTITUTE.**—A working man has written to us concerning these bodies in general and particular. We have over and over again expressed our opinions and made some suggestions recently in reference to the Dublin Institute. We may return to the subject shortly. In the meantime we will willingly publish any practical proposals our correspondent may wish to make.

**C. E. (Belfast).**—A series of papers appeared on the subject in one of our back volumes.

**W. H.**—Sea sand should not be used for inside work. Even when well washed it is often unsafe. For outside walls

there is not much danger. Where there is joinery work, window and door trimmings in contact or close to brickwork in which sea sand has been used, dry-rot may be expected. Mortar made with sea sand or road mud, if in close contact with green timber, the effects will be soon visible. Want of ventilation aids in the development of dry-rot under floors.

**M. D.**—Members of your own profession are often prone to differ as well as architects.

**THE BOUNDARY QUESTION.**—A correspondent is informed that the letter he sends us are our own views, slightly modified. The reasons we gave were made use of in the evidence tendered by a certain witness.

**R. H. A.**—We are fully aware of the fact, and had no intention of ignoring it, but it was an exceptional instance.

**RECEIVED.**—J. C.—L. L. D.—A Citizen—R. S.—A Plumber—C. Y.—P. M.—G. M. (London)—E. M.—A Builder—O'B—H. S., &c.

#### NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Correspondents should send their names and addresses, not necessarily for publication.*

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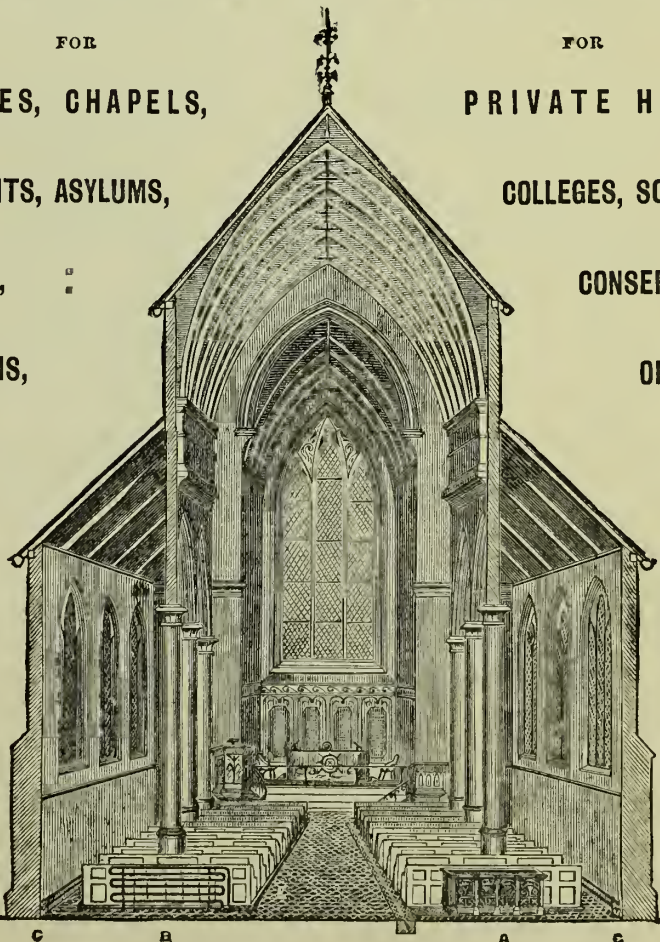
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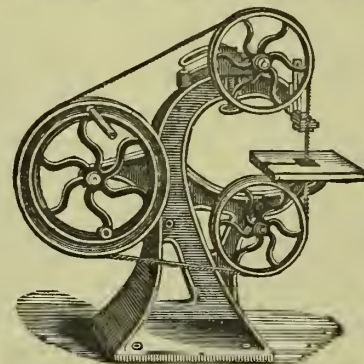
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## THE IRISH BUILDER.

VOL. XXI.—No. 468.

## ARTANE RE-VISITED.

## THE INDUSTRIAL SCHOOLS.



It is many years now since we first visited Artane; indeed, as boys we have known the neighbourhood, and, mayhap, have been carried in our mother's arms through the historic village, for our first breath was drawn a few fields distant, and nearer to the city. Since these days of a happy boyhood we

have traversed many cities and towns at home and abroad, but our Fingalian memories are still fresh and green. Re-visiting Artane a few days ago we were led thither by the double impulse of seeing for ourselves the progress of a noble foundation and great industrial institution, and of refreshing our memories with scenes hallowed by the recollections of our youth. Perhaps there is not one person in a thousand, or five thousand, who crosses the historic Tolka at Ballybough (now Fairview) and passes through Donny-carney on to Artane, on the old Malahide road, who is aware of a tithe of the memorable events that have happened along and on either side of the roadway he pursues. Ballybough to the ordinary visitor is a most commonplace locality; Donny-carney a straggling and unsuggestive village; and Artane scarcely more suggestive, though sylvan and healthy for holiday drivers and citizen walkers. Artane is, to the many, nearly what it was thirty or forty years ago—a place with fields and gentlemen's seats and lawns on either side, and a village where primitive mud-walled and thatched cabins may be seen as of erst, though some homesteads of a better class than whilom are visible.

Approaching from Donny-carney, and as you pass the Puckstown-road, the sight of the new Industrial School buildings of Artane breaks upon the visitor's view. In the distance the site appears to be what it really is, an elevated one, and the new buildings certainly occupy a commanding position, embracing a splendid view of the Island of Lambay, Ireland's Eye, Howth, and the Dublin and Wicklow mountains. As we entered the grounds of the new institution, a host of memories rushed in upon our mind, for here indeed we stood upon deeply historic soil. The residential

mansion, which we knew in our youth a modern one, still stands, and is occupied as a dwelling and as offices by the Christian Brothers, by whom the Industrial Schools are conducted. The ancient home of the Hollywoods, the Castle of Artane, stood near to or upon the site of the mansion alluded to, but it was pulled down about the year 1825, and its materials were utilised in the present building by Mr. Matthew Boyle, the uncle of the succeeding proprietor, Mr. Matthew Callaghan, a prosperous citizen trader, who continued to reside in the house at Artane for several years. The National School that exists near the old church was built in 1832 at the expense of Mr. Boyle, who contributed £600, of which £150 was repaid by the National Board. In addition to the yearly sum then given by the board for the support of this school, Mr. Boyle bequeathed, in 1833, £10 per annum for the same purpose. The old Castle of Artane was for a long time the property of the Donnellans of Ravensdale, and was the scene of the death of Allen, Archbishop of Dublin. The Archbishop was endeavouring to escape to England, but was shipwrecked at Clontarf, and on being made prisoner, was brought to Artane Castle before Lord Thomas Fitzgerald ("Silken Thomas"), who was posted here with his forces. We will not enter into the discussion concerning the causes that led to the massacre of the Archbishop, who was slain in the hall of the old castle on the 28th of July, 1534. It is sufficient to say here that the Archbishop fell a victim to the vengeance of the Kildare family, to the head of which he was, however, an avowed enemy. The old Castle of Artane was made memorable again on the breaking out of hostilities in 1641, when it was taken by Luke Netterville, a Catholic leader, at the head of a body of royalists, and by him garrisoned.

A portion of the old church of Artane, with ivy-covered walls, is still standing within a stone's-throw of the Industrial Schools. It once contained a number of interesting monuments and tombstones, but the churchyard being for many years unenclosed, the most interesting monuments have long since disappeared: many were broken, and others were carried off to be used for building purposes elsewhere. There is one historical tombstone still existing, but greatly defaced, within the now enclosed graveyard. It is to the memory of one of the Hollywood family, to whom the manor belonged for several centuries. Several members of the family were distinguished as churchmen, philosophers, patriots, &c. A John Hollywood, in the thirteenth century, was a noted mathematician and philosopher; and of Father Hollywood, a distinguished Jesuit, and other members of the family in more modern times, Ware's writers of Ireland, and the Rev. C. P. Meehan's magnificent volume, "The Fate and Fortunes of the Earls of Tyrone and Tyrconnell," will supply several important particulars. The chief incidents in the Rebellion of "Silken Thomas" have been wedded into a deeply interesting and historical novel by Samuel Ferguson (now Sir Samuel). We allude to the "Hibernian Nights' Entertainments," which appeared in the old *Dublin University Magazine*, about the year 1835. Artane, Clontarf, and other places in the vicinity north and south of the Tolka figure in the story. The reader interested in the history of the Fingal district may usefully consult the Annals of the Four Masters *re* Dublin,—O'Donovan's translation, and B. Moran's

edition of Archdall's *Monasticon Hibernicum*, &c. The footprints of the ruling O'Neils and O'Donnells are no longer visible on Irish soil, yet it is certain that the great earls and their relatives and followers once imprinted their feet in the historic soil of Artane, and passed over the very ground now occupied by the institution of the Christian Brothers. The whole district of Fingal is rife with memories of Irish struggles. Patriots and ecclesiastics, and ecclesiastical patriots, have wielded the pen as well as the sword, and echoes of their days and deeds are plentiful if they are sought for in the right direction by those interested. Our purpose here, however, is not to waken political or religious recollections for party sake, and we only touch upon the historical past in an incidental way. All thoughtful minds like to hear a little of what has gone before, of what was before our day, and of what stood in the place where we now stand. A thousand years may pass, but whether it be only three hundred or ten, the human mind yearns to hear what once has been; and 'twill be ever thus till that eve that knows no to-morrow. Political and religious feuds will die, but their history will live; and thank God we live in a more tolerant age, when men can speak and write of men and events long past without being charged with partizan motives. The old Castle of Artane can now only waken a memory through the page of history, and the ruined church suggests nothing but veneration; but on the grounds where the former stood, there uprises an institution which the chieftains of three hundred years ago would, we dare say, willingly support if its establishment was possible then. They loved education, and helped those engaged in it, despite their warlike proclivities. The sword was their weapon perforce for righting a wrong and removing a grievance; but now upon the soil they once trod, charity and good will are bearing fruit, and a Christian brotherhood are working a moral and industrial reformation for the good of the country, by eliminating crime from the hearts of the young by good teaching and training, and all else that tends to make men more manly, and workmen better workmen.

## THE INDUSTRIAL SCHOOLS.

In our round through the different workshops of the Industrial Schools, we were highly pleased with all we witnessed. Among others we observed boys working at the following trades:—Shoe-making, tailoring, harness-making, carpentry, farm-carpentry, cabinet-making, weaving, painting, baking, smith-work, rope-making, tinplate-working, masonry, gardening, &c. Upwards, perhaps, of 800 of the boys are employed at hosiery, cap and shirt-making, knitting and crochet, and some of these work at sewing-machines. The workshops are at present temporary timber buildings, yet well suited for their purposes. As soon as sufficient funds are available and other wants supplied, new workshops will be erected to replace the present. A farm of about 100 acres is well tilled; and it may be said that every article of clothing worn by the boys is made by themselves, as they weave cloth, frieze, blankets, sheets, towels, &c. In the schools the boys are put through an excellent course of education, suited to their future wants. The boys having a taste for drawing are instructed in that branch, and put to trades in which it is most useful. The boys which we visited at school and in the different workshops, appeared to be in excellent health, and it can scarcely be otherwise considering the healthy locality and the treatment they receive. The dairy is supplied with milk from twenty to thirty cows, and the beef and mutton used is furnished on the farm. Even the bread used is baked in the house, and some of it is from wheat grown upon the farm. There is a brass as well as a flute and string band, and we heard some of the most difficult pieces of music efficiently rendered by the boys attached to the bands.



The Schools at Artane were opened in 1870 with a few boys—scarcely a dozen, we believe,—and it now contains nearly, if not fully, 700 inmates. Such a rapid progress must be most cheering to the promoters and patrons of the institution. Preceding the founding of the Artane Institution, an Industrial School was opened at Inchicore after the passing of the Industrial Schools Act for Ireland in 1868. The certificate was withdrawn from this school in 1870, as it did not meet the requirements of the act. The lands at Artane were next bought by a committee of noblemen and gentlemen, and the boys at the Inchicore school were transferred. At Clondalkin, Gort, and other places in Ireland also, there were certified schools, but these too failed, and their inmates were brought to Artane. Since that time till the present there has been a continued progress, and the schools are now recognised as a leading charity, receiving much generous support from all classes, irrespective of sect or party. The Viceroy and his Duchess have several times visited the schools, and evince a great interest in their success. During the meetings of the British Association in Dublin last year it was visited by upwards of 200 members of that body and others. From a report (the latest issued) by Mr. John Lentaigne, Inspector of Reformatory and Industrial Schools, we learn that the sum of £2,872 odd was expended in 1877 on the main building of this and the extension of the workshops and out-offices attached. This large building is now, as a whole, approaching completion. It has centre and two wings measuring 368 ft. in length, and 56 ft. in depth. The central portion is 96 ft. long and 90 ft. in height. The northern wing, for some time finished and occupied, is 136 ft. in length and 78 ft. in height. We visited a number of the dormitories in this wing, and nothing could exceed the cleanliness of the beds and bedding and all that appertains to sleeping accommodation. The rooms are lofty, the ventilation good, and the sanitary appliances efficient. Adjoining each dormitory or sleeping-room, there are lavatories, well arranged with baths, &c., for the boys. There is an airy feel and a wholesome roominess about all the apartments in the new buildings, for they are lofty, spacious, and clean. The hall and staircases are wide, and the workmanship and materials appeared to us, so far as we examined them, excellent. The southern wing is of the same length as the northern, but owing to an incline in the ground this wing is given a basement storey, and is 88 ft. in height, to correspond with the top level of the northern wing. At the rear of the main building there is a block containing a refectory and chapel 116 ft. long, 70 ft. high, and 42 ft. wide. The range of workshops, which lie on the northern side, measures 460 ft. in length by 30 ft. in width, and are 18 ft. high. The Vartry water has been brought to large tanks on the roof of the main building, at a cost to the institution of £530; and gas is already laid on, a connection having been made with the pipes as far distant, we believe, as Marino, and all at the cost of the institution.

Steam-power is utilised in connection with the workshops of the schools, a 10-horse power engine being used for working a corn and saw mill, lathes, &c. The Rev. T. Hoopes, the efficient director of the schools, is fully alive to the growing wants of the institution,

and appears to be well fitted in every way for conducting such an establishment. He is assisted in the management by a community of nearly twenty Christian Brothers, whose labour in their respective fields is indefatigable. The various workshops have experienced foremen, selected for their practical knowledge of the trades they teach the boys—not walking, but working foremen, numbering between twenty and thirty. There is a singing master as well as a band master, and the former acts as organist of the church; and we may add here that there is also a drill master, drawing master, and an infirmarian. In fact, workshops, schools, farm and other departments are well organised. We closely examined in the various workshops pieces of work executed by the boys, and the handicraft, making due allowance in particular directions, is very creditable. The most successful labour appears to be the shoe-making, tailoring, tinplate working, white wood cabinetmaking, ordinary carpentry and joinery, and portions of the weaving. The harness-making, too, is worthy of notice, and in this department we saw well-executed work.

It may be thought by some that an institution embracing so many varied trades could soon be made self-supporting or to a large extent self-supporting. Well, in our opinion, this is not possible under the constitution of the schools, because the boys committed to this establishment can only remain for a limited time, and much labour and trouble, entailing a large yearly sum, has to be continually expended on their schooling and training. As regards a few trades—such as shoe-making, tailoring, and one or two more easily acquired and not involving a large outlay for appliances,—in connection with these there will always be certain profits; but with regard to others—such as the building branches—the work is so varied that the boys cannot obtain any great knowledge or experience of them in the industrial workshops, because it requires actual building operations to become a good carpenter, joiner, mason, bricklayer, plasterer, &c. The rudimentary knowledge, however, acquired by the boys in the industrial schools, even in connection with the various trades, will be most serviceable to them when they are afterwards apprenticed out, as many of them have been already, belonging to these last-named branches.

The new buildings at Artane have afforded opportunities to some of the boys of seeing the routine of building work; and after the main buildings are finished there will be from time to time the erection of a number of new workshops to replace the present temporary wooden ones. At present there is a great demand for boys to apprentice out, and the applications far exceed the number that are fit to be discharged. All this proves the great utility of the schools, and shows that the applicants are fully alive to the advantages of obtaining boys who can handle their tools, and who know how to work at some branches at least of their allotted trades.

It may be asked what are the practical results of the industrial system at Artane? Well, of the 207 cases discharged during the years 1874-'5-'6, 195 were reported as doing well, only 4 were re-committed to the schools, 3 were convicted, and 5 were unaccounted for. The last issued report informs us of 97 boys placed out during the

year, including 3 harness-makers, 9 shoe-makers, 8 tailors, 6 house-carpenters, 1 ship-carpenter, 1 farm-carpenter, 2 masons, 1 plasterer, 7 painters, 1 baker, 1 bookbinder, 1 smith, 4 tin-smiths. Three were placed in situations as clerks, 9 as assistants in different shops, 16 as house-servants, porters, warders in asylums, grooms; 17 are farm-labourers, and 7 enlisted in regiments of the line. It will be seen by the above enumeration that the boys that are turned out are being absorbed in a variety of useful callings suited to their capacities and tastes. Viewing the above, there is nothing to complain of but much to commend, and all showing that the teaching and scope of the institution is most praiseworthy, and such as to entitle it to public patronage that it may usefully prosecute its valuable mission of moral and industrial reformation.

The total expenditure of the Industrial Schools in 1877 was £17,762 odd, of which £2,872 odd was for building. The average cost per head was £21 4s. 9d., and the industrial profits £1,048 17s. It will not be out of place to notice here that the reformatories and industrial schools in England are placed on a more advantageous footing than those in Ireland. On the 9th inst., in the House of Commons, there was a vote for £194,351 for the expenses of reformatories and industrial schools, which led to an animated discussion. Mr. James Stewart moved to reduce the item of £112,000 for the schools in England by the sum of £6,891 on the ground that the Treasury did not give an equal allowance per boy to Scotland as they did to England. Sir H. S. Ibbetson proposed that in future all boys in industrial schools established in Scotland since 1872, and certified to be efficient, should be paid at the rate of 5s. instead of 4s. 6d. as at present. On the part of Ireland Mr. Bigger moved to reduce the vote, on the ground that while in England an unlimited number of boys might be sent to a reformatory, in Ireland the number was limited to the discretion of an inspector. The Government, however, carried the vote; but the discussion that ensued was, nevertheless, useful. The admission of the boys in Artane are confined to cases that come strictly within the limits of the Industrial Schools Act for Ireland. Indeed the inspector of the Irish schools is satisfied, after careful inquiry, that there is not one boy in the Artane institution whose case, when he was committed to the school, did not come strictly under some of the provisions of the Irish statute.

There are one or two bearings on the subject of the industrial school system in general which we intended to notice, but we have greatly extended the limits we marked out for ourselves in our present article. We may, however, return on an opportune occasion to the question, with a view to future prospects and possible results.

And now, by way of *finis* for the present, there remains for us to add that the architect of the new buildings at Artane is Mr. Charles Geoghegan, and that the work is carried on by workmen employed by the Brothers, without the intervention of any contracting builder. A clerk of works or overseer is, however, in attendance. The rubble masonry of the building is the limestone of the district, indeed of the very grounds, for there is a quarry within two or three hundred yards or less of the works, a part or continuation of the old Artane quarries, once extensively worked in the last century and the



earlier years of the present. The calp or limestone formation extends through the district at no great depth. There is a scarcity of sand in the locality, and we observed that sea sand was being used at the new school buildings. Although we would prefer to see fresh-water sand, or well-washed pit sand, if procurable, we do not think any injury will result from the use of the sea sand at Artane in the rubble work, as the entire face of the work will be well cemented outside, and that the jambs and heads of the windows are formed of concrete. If due precautions have been taken in respect to the seats of the joists, and in connection with the inner plaster work, no fear of dry-rot need be entertained in regard to the material alluded to. Thorough ventilation is, however, requisite under the conditions described, and the keeping clear of all woodwork from stone or brickwork building in which sea sand has been perforce used, even though the sand has been subjected to a washing. Possibly, all due precautions have been taken, and if so our remarks in this particular case will, we hope, be accepted by all concerned in the kindly spirit in which they are made, for our visit to the schools and what we witnessed there pleased us very much.

Long, then, may the Christian Brothers find meet employment for their heads and hands, such as we have endeavoured to describe; and long may our countrymen and countrywomen assist them to do works of love and charity, so wisely and usefully for the common weal as they are doing at historic Artane.

#### SOME THOUGHTS ON ARTISANS' DWELLINGS.

By JOHN S. SLOANE, C.E., ARCHITECT.

##### PART I.

THE providing of house or living accommodation for persons of the working classes having engaged my attention for over thirty years, during which time I have designed and erected a great number of small dwellings, the proprietor of the IRISH BUILDER has been kind enough to consider me as somewhat of an authority, and permit me to make a few remarks on the subject. In my lengthened practice I have visited groups of artisans' dwellings in England and Scotland, in France, and wherever in Ireland anything was to be found at all worthy of the name, the result being the arriving at the conclusion that in the range of an architect's duties few problems are more difficult of solution than the planning or designing a fitting home for the wife of an artisan—I say the wife, because it is in reality for the better half the design should be made, and it is her comfort and requirements that should be studied—the man's time in the house being little more than that spent during his sleeping hours.

Architects and their critics are too much in the habit of considering the building of the dwelling, its style, material, &c., without thinking of the class of person for which such dwelling is to be constructed; there are many comforts known and appreciated by the people of one country which are as "pearls before swine" if provided for persons of another. I have known, for instance, in a house erected at the public expense, with sitting room, kitchen, and three bed rooms, made scrupulously clean and ready for inspection at any moment, the father, mother, sons and daughters all living night and day in the kitchen, as otherwise they would have the trouble of keeping the parlour and bed rooms in order; provide such people with a scullery or wash-house and boiler, and you may rely on its never being availed of, at least not until some means are taken to educate their ideas, or bring them into a

civilized state by example and emulation. I have seen most expensive kitchen utensils put to the queerest uses, large fish kettles forming capital troughs to feed pigs, and block-tin dish covers to hold such cleaning stores as whiting, sand, and bath brick; as to out-door conveniences, the coal vault and ash pit were generally used, but the w. c. was locked up from inspection to inspection. The dwellings of coast guards, although not remarkable for large accommodation, are always well and neatly kept, from the habits acquired on board ship, as well as a certain emulative tendency observable in all small communities.

Although, generally speaking, there is some attempt made in buildings erected by public boards to separate the male and female children (if we may except the military officers' quarters, and those for married men in barracks), still it is but too often the case that the people for whom the dwellings are designed will themselves defeat the objects in view, the man or woman born in a cabin or garret will much prefer spending their lives in one room with their family, no matter how numerous, to the trouble of adjourning to separate apartments, unless, as I said before, example teaches them better, which is one great advantage in grouping dwellings. I have seen in Ireland a horse, two cows, two goats, grandmother, father and mother, brothers and sisters, an infant in a cradle, all in one apartment; there was an inner room with two bedsteads, one answered as a standing for firkins of butter, the other for seed potatoes; this was in many places in county Cork, and in Erris and Tyrawley. The late Lord George Hill, in his book, "Facts from Gweedore," mentioned the great difficulty he had in getting the tenantry to give up this gregarious method of living, and at night when the one door of the house is shut, the effects from want of ventilation on the health of all, man and beast, must be most injurious, the disease known as the "*Head fall*," which all but depopulated Tory Island on the coast of Donegal, about twenty years ago, has been not without some reason ascribed to this cause, and I have always found attempts at ventilation resisted. Latterly I have been in the habit of introducing a false lintel over the doors under the true one, leaving a passage between the two of half or three quarters of an inch concealed by the architrave and moulding, and thus insuring some ventilation, which, not being known or suspected, was not rendered useless, as it would be by paper or rags being used to caulk it up. The gentleman who enjoys most fresh air, and, to a certain extent, cleanliness, is the Irish pig; the better he is kept the more money will he fetch, and from this cause Irish bacon is prized and sought after abroad in preference to English.

But to what does all this lead? It leads to the consideration of the original dwellings of the great mass of our workmen, and what should be provided for them to suit their views and purses, and to combat and remove their prejudices. Buildings in flats with anything in common should be avoided where possible, as should also American stoves with boilers and saucepans; they won't have earth closets at any price, nor water either, if they have the trouble of pumping or in any way assisting to supply the water; windows need not be double-hung, they will never be opened, but the cords will come in handy to tie a trunk when Mary is going home to her first place. Some think the outer stairs and balcony arrangement good; it answers well occasionally. I have seen it in London, and at the married soldiers' quarters in Edinburgh, but when made the drying place for the family "*blanchiseur*," the exhibition does not add to the picturesqueness of the neighbourhood.

In cities and situations where the site is expensive, the "flat system" may be unavoidable, but giving a single house to each family as in several of the English towns, and in Cork, Belfast, Lurgan, Lisburn, &c., is much to be preferred, as it avoids disputes and

divided responsibility. A favourite plan in many of the English manufacturing towns is to have a living room with door opening from the street, a back room for kitchen, with neat grate and oven, also a scullery with sink or jaw box and boiler, floored with red and black tiles; underneath front room there is a cellar in two divisions, one for coals, and two bed rooms over living room, and kitchen, with a useful attic in roof; the spaces under stairs are utilised as presses, and the cellars have shoots and are lighted from the street. The house, a plan of which I have before me as I write, is 20 ft. in height to eave course; eight of them open on a yard which serves as a play place for the children and for drying clothes, and there is a common passage to this yard from the street, so that the usual entrance to the houses is by the kitchen, the street door being seldom opened excepting to strangers. These houses are let at six shillings per week; the rooms are each 11 ft. square and 9 ft. in height, and there is a porch to back door which forms the scullery; the ash-pits, &c., are looked after by the town's authorities, and all ashes and soil removed once a-week, at a very early hour in the morning.

These houses will cost under £200 to build well and substantially, and will give a dividend on outlay of about 6½ per cent., but speculators in England are satisfied with less profit on building than those in Ireland, and do not build so well, or so well as we formerly did, but I regret to say we are fast drifting into the Jerry system. Men whose wages do not afford 6s. can have a smaller house at 4s. 6d., and all these have a number of little comforts and conveniences unknown to the poor dwellers in single rooms in the purlieus of crowded cities.

Promoters of temperance who sneer at the working man for seeking relaxation in a public-house, do not realise the sort of home the artisan has in nine cases out of every ten, the one room to serve him as parlour and kitchen and all, the crying children, the week's washing drying at the only fire, probably sickness in the room, even a drink of pure water difficult to procure—more so now that the Vartty is all the citizens have to look to. A house however small, having the accommodation I have described, would give the working man a place to enjoy his pipe and newspaper and glass of beer when his day's work was over; the kitchen would be the place for the family laundry, and if there was even but one bed room, it would still be an immense advance towards comfort and temperance, and against the temptation to leave home, merely to get out of the way of the over-crowded and worried womankind. There are many sites about Dublin where small dwellings could be erected without having recourse to the gregarious or flat system. Working men rarely get home to their meals, and I have never known distance to be any object with them in the choice of a dwelling; but hitherto the difficulty in obtaining anything but the one room within their means has been insurmountable. Promoters of temperance could aid the object in view, and add greatly to their own wealth by erecting small houses for the artisan, not with any mere philanthropical object—not as a Lord Bountiful, for the artisan is proud, and wants nothing for nothing, and long may he continue so—but as men wishing a sure five or six per cent. for money which in many cases is lying dormant or dead in a railway, without even the hope of a joyful resurrection, or gladly lent to some harbour or other board at 4 per cent. The working man and his family would soon learn the difference between the one room and misery of his early days, and the comforts of a home where decency could be had and privacy respected—for the Irish are proverbially modest,—but he must not be driven, or inspected, he must not be made a model of, be talked to, or talked at by an Alderman Cute, or statistical Mr. Filer, like a pattern Trotty Veck;\* let him eat his tripe as he likes—he pays for it, and it is his;

\* Vide "The Chimes,"—Dickens.



but let there be no donations or subscriptions; if you can build a house and let it with a profit at 4s. 6d. per week, do so, and he will pay you that amount as he pays his butcher or his baker; let it be a commercial benefit mutually, without compliment on either side, and add to it for your own satisfaction the idea that you are working in the cause of temperance, if you wish to do so, and are helping the working man to find his most attractive club in his own home, for—

"There's no place like home."

Without looking after such sites as may be had cheaply and unwholesomely in the Liberties and old city of Dublin, or on masses of rottenness and *débris* of scavengers' carts, many desirable spots could be found on which the well-advised speculator could secure for himself and his posterity good and valuable property, especially now when building materials are so cheap. From the amount of concrete being used, and the importation of granite from Cornwall,\* strangers might imagine that stone was not easily to be had in Dublin, but such is not the case. Good granite rubble can be built cheaper than cement concrete, and we have also limestone in plenty; and the calp, if well handled and selected, is not at all to be despised. Ten houses can be erected, including architect's fees, for less than £1,650; these at 4s. 6d. per week each will give £117, from which deduct £35 for rates, &c. (i.e., outside city boundary), and the result is £82, equal to over 5 per cent. on outlay, by being paid weekly and without risk. A better class of house at 6s. per week would return a larger percentage, and in these cases the loss on painting and papering after a retiring tenant is almost nothing beyond what is absolutely necessary for preservation. There are no gimcracks required to catch the eye, no expensive plaster enrichments, or marble chimney-pieces, or delft lavatories to last as many days as nights, or china shutter-knobs, or door handles—all should be strong and plain, useful without being ornamental, with a plentiful amount of lime whitewash wherever suitable; and as few opportunities for alteration as to keeping anything in order between Mesdames Fitzroy and Montmorency as possible, anything in common, such as yards or passages, being looked after by the agent of the proprietor, who, like a *conciergerie* in France, should live on the premises.

#### OUR MALL-ODOROUS STREET TREES.

THREE attempts at least have been made by our municipal authorities at tree-planting in the old Mall, i.e., Sackville-street, and each experiment has resulted in failure. Most of the trees have rotted down without taking healthy root, and the remainder have merely vegetated for a few months. The last experiment is ending like the preceding ones, and our citizens, or those who take an interest in the matter, are wondering what are the causes of this continued non-success of tree-planting in the widest street in Dublin. At present nearly all the trees in Upper Sackville-street, though they have thrown out leaves this spring, yet something like a blight has passed over them before the leaves had expanded, and decay has marked the foliage and the stems as her own. The chestnuts budded, and looked to a degree promising in April, but ere the month of May had closed the leaves had withered on the branches. Decay has set in also in respect to the other trees, and the only promising ones are some of those in Lower Sackville-street. One would suppose that those in the upper portion of the street would thrive the best, as it is less subject to traffic and more airy and less smoky, perhaps, than the

lower street. The upper street has still many private houses, or otherwise it is not so much devoted to shops and warehouses as the lower one; and viewing all its surroundings its condition is more conducive to the growth of vegetation than that portion of the street nearer to the river and the quays. The facts are, however, as stated; and it almost tempts one to ask are there any malign influences at work, human or atmospheric, which are preventing the trees from growing in Sackville-street? First, have they been well selected; secondly, have they been properly hedged in fitting soil; thirdly, have they been injured by human agency since planted; and fourthly, is it possible to grow them in Sackville-street? We do not desire to cast blame on any particular person connected with the selection, planting, or care of the trees mentioned; but, having witnessed the experiment of tree-planting in London and suburbs, and in several other towns of the sister kingdoms, and in streets far less wide and more populous than Sackville-street, we fail to see why failure should overtake the Dublin experiment if it were properly conducted. Some trees will die out of the many or few that may be planted in any locality; for if they do not receive injury in some manner from beneath, they may receive it from above. And again, trees are to some extent like men, and the climate or locality must be selected to suit their constitutions. Some plants will not grow well except in deep soil, others thrive in a sandy one, and more will grow luxuriantly on an old stone wall or in nooks and crannies where there is scarcely an ounce of pure mould. We opine that the trees in Sackville-street have not as a whole been well selected, and as a whole that the soil in which they were bedded was not, in extent, depth, or nature, entirely suited for their healthy growth. We are of opinion, too, that roots of trees in Sackville-street suffer more or less from a leakage of gas, and are too near the pipes. We are of opinion, also, that sufficient care and attention has not been paid to the trees after they were planted, and that their roots have suffered from poisonous percolation from the streets, in addition to what they may have suffered from emanations below. Some folk think that any filthy compost, no matter of what composed, forms a good fertiliser and nourisher of plants. Some filth, properly treated and spread, may form a valuable manure; but the roots of the trees in Sackville-street have in many cases suffered from the drainage and accumulation of matter that must have proved deadly to their growth. No doubt if the trees in Sackville-street had been planted in the centre of St. Stephen's-green they would grow; but a tree planted in a public street requires far more care than one planted in an open field or enclosed square. It requires care for a year or two until it has taken strong root; it requires its soil to be looked after, and it requires pruning. It is sheer folly to suppose that you can stick down a tree in any place as you would a pole or a stake, and that it will grow without further trouble. The first experiment of tree-planting in Sackville-street was performed in a perfunctory way, and the last was not accompanied with all the conditions needed to secure healthy and vigorous growth. The plane trees on the Thames Embankment in London and in other wide thoroughfares are flourishing, and the trees in Sackville-street would

have flourished if properly handled and tended. No valid reason exists why plane trees or other suitable trees in Sackville-street should not grow and prosper.

#### GRANISH PRESBYTERIAN CHURCH.

THIS Church (the foundation stone of which was laid by Mr. H. L. Mulholland on the 7th October last, in the unavoidable absence of his father, John Mulholland, Esq., M.P., Ballywalter Park, County Down) was opened on the 1st inst. Our illustration (taken from the drawing exhibited in the Royal Hibernian Academy) shows exactly the style of the building as executed. It is built of Scrabo stone, with dressings of Dundonald stone finely chiselled. All internal fittings are of pitch pine, the open seats and pulpit being especially good; accommodation is provided for 400 persons, but nearly 600 were seated without inconvenience at the opening services. The amount of the contract for church complete (exclusive of session and clergyman's rooms) was £1,500, and as stated by the minister (Mr. Vane) "there was not a single sixpence of an extra on the contract." The extreme moderation in cost created considerable surprise among those who had seen the church for the first time at the opening services, and the more especially so that everything has been "carried out in the most sound, substantial, and workmanlike manner, with materials the very best of their several kinds," and the workmanship equally good. The church occupies a very good site, and the spire can be seen for a considerable distance in the surrounding country. Mr. Henry Chappell, M.R.I.A.I., Newtownards, is the architect, and Mr. Hutcheson Keith, Belfast, the builder.

#### KENSINGTON, WINDSOR AVENUE, BELFAST.

THIS house (the perspective view of which appeared in our last issue) has been but recently finished. The walls are built with best perforated brick, having blue brick where shown for bands and arches. The interior wood-work is the best selected pitch and yellow pine, and has been highly polished. A handsome sash-door gives access from porch to the hall, which is 8 ft. wide. The drawing-room, dining-room, and bed-rooms over same are each 24 ft. by 18 ft., exclusive of bows which are 11 ft. 6 in. by 5 ft. 9 in. All the sashes are filled with best polished plate-glass; the staircase window, panels of sash-door, and side lights being stained enamelled glass. The plasterers' work is of an ornate and original kind, as all the designs for centre pieces and enrichments were executed from designs supplied by the architect. The conservatory, as well as portion of main house, is heated by hot-water, having ornamental cast-iron grating over same. The front is enclosed by a low wall having iron railing on top and ornamental entrance gates. The works have been carried out in a very satisfactory manner by Messrs. J. and J. Guiler, contractors, according to the plans and specifications supplied by Mr. William Batt, jun., and under his superintendence.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

FROM a sessional paper just to hand we learn that the closing meeting of the R.I.B.A. will be on the 23rd inst. The Royal Gold Medal will be presented to the Marquis de Vogüé, and a short address delivered by the President. The annual distribution of prizes will take place on the same occasion.

\* See IRISH BUILDER of 1st November, 1878.



## ON THE USES OF A COLLECTION OF OLD ENGRAVINGS.\*

(Concluded from page 172.)

ONE of the most important uses of old engravings is that we may trace the history of the world by them for nearly the whole of the last four centuries. These are no mere fanciful transcripts, but are true to life, of contemporary date, exhibiting faithfully the scenes and the actors. The number is practically without limit. Let us notice a few, to demonstrate their wide range. Here is a scarce print of the "Tournament," given by Pope Pius IV. in the old Vatican. We see the new Church of St. Peter's in progress in the background. Michael Angelo's dome has not yet been begun above the lower pillars. The whole composition is filled with neatly-drawn figures, true in all the details of their costume and armour. Here is the congregation of cardinals for the election of a pope, 1565, and here the whole ceremony of the extraordinary reception given at Venice to the Doge Antoine Priuli, 1628. The canonisation of saints, in 1712, by Clement XI., is finely rendered in Picart's Plate, and Louis le Lorrain, 1745, records one of the grand pageants prepared in honour of the marriage of the Dauphin of France with Maria Teresa of Spain. France may claim the largest collection of historical engravings. Here, as examples, are two records of the fêtes at Versailles, engraved by Chasteau, 1676, and by Le Pautre. A charming engraving represents a *bal masqué* a few years later, while Le Clerc, 1681, gives a true representation of the siege of Tournay by Louis XIV., an example of a large series of battle-pieces, by various artists, deserving of special mention. Another plate represents the coronation of Louis XVI., dated 1775, and indicates the ceremony with wonderful regard to detail. A sadder subject is that of his visit to the Hôtel de Ville, 1789, and of much interest in illustration of Parisian topography. This is followed by one of the beautiful plates of the series of the coronation of Napoleon, rendered in the charming style of the period. Another print shows the translation of Voltaire to the Pantheon, 1791.

Holland has a fine series of engravings illustrative of the progresses of William and Mary. Here is a triumphal arch at the Hague; there is the army at Arnheim; and there the oaths in the English Parliament. The marriage of Franciscus Mollo with Anna Maria Ooms, 1674, has occasioned a well-engraved allegorical print; and the dedication of the synagogue at Amsterdam, 1721, has not been forgotten by the engraver. The print is an admirable rendering of the ceremony.

The English series demands passing notice. Here is a specimen of the ordinary book illustrations of the end of the seventeenth century, done by a native hand. It poorly represents the lying in state of Queen Mary, 1694, "to the great greefe of all good subjects." The reception of James II. at St. Germain, 1689, is well rendered by a small Dutch plate. Carrington Bowles, 1747, devotes one of the best of his numerous plates to the trial of Lord Lovat in Westminster Hall, and which is coloured after prevalent taste. A print, dated 1750, records the action at Porto Bello, and the fashion of English ships, while the death of General Wolfe is full of artistic treatment, as might have been expected from its composer. The "Volunteers in St. Stephen's-green, Dublin, 1784," recalls a stirring time in English history, and of the creation of a force which, revived so lately, will still do honour to our country. "Victory" represents an illumination in the streets of London, with an admiring crowd in the foreground. This review of a class of engravings is miserably meagre, for the theme is endless, and every incident in history is recorded by the engraver; but how can I bring in more in the compass of my time? We may trace

the manners and customs of all countries by the study of old engravings. I must only indicate it, and produce a few very diverse examples. Here is a skating scene, drawn from the life by Peter Breugel, and dated 1553. It represents a severe winter, and a crowd of skaters are gathered in the moat outside St. George's Gate, Antwerp. Both moat and gate have passed away, but we see both here. Crowds of male and female skaters are seen in the costume of the period, and we may notice the form of the skaters, the hats, the cloaks, the game of hockey in the distance, the child's gcart, and the travelling wagon. Callot's "Fair" is dated 1620. It is a perfect encyclopædia of the manners of the people. The scene is laid in Italy, and we may observe the improvised juggler's show, with the snake-charmers, the open-air restaurant, the hawkers, the covered booths, the design of the open carriages, and a thousand little matters of the life and detail of 250 years ago, of which not the least interesting is the punishment accorded to a rascally trader who has been detected in giving false weight. He is suspended by his hands, which are bound behind him, to a gallows, and raised and lowered, while the scales are tied to his feet. The English plate, the "Royall and most pleasant Game of the Goose," initiates us into a once popular game; and the "Doctors in Labour; or, a new Whim-wam from Guildford," recalls a once wonderful imposture, as well as affording evidence of an Americanism which was once popular English. The "art" of advertising, as it has justly been called, has an apt illustration in the curious trade-ticket of Mary and Ann Hogarth, "from the old frock-shop round the corner of the Long Walk." It is designed by W. Hogarth, and is an interesting example of a large series. The simple church of St. Marguerite at Saltzbourg indicates a picturesque cemetery surrounding it, with crosses and monuments of all sizes, of design not now common. The "Hag of the Dribble" recalls a once-dreaded superstition, prevalent throughout Wales. Indeed, it may be doubted if it has yet thoroughly died away. These few examples may suffice to show how limitless is the extent of the engravings for illustrating the events of daily life of all countries.

Religious manners and thought have their illustration in an ample manner in old engravings. To glance rapidly at this subject. Here is a beautiful plate by Nicholas Beatrizet, a Frenchman settled in Italy, of the Invention of the Rosary; there Marelly's coronation of the Virgin; and there one scene only in Vannus's life of St. Catherine of Sienna. Of miracle records, I show a scarce print of the "Translation of the Holy House of Loretto." Angels are bearing the house across the sea, and we may notice with strange wonder how it settled down in safety at the place of its rest. Another is a Dutch print, by Frederick de Witt, of the appearance of the Virgin at a ruined chapel, with a circular procession of pilgrims. The miraculous image of "Our Lady of Roncevalles," and that, also, of "Our Lady of Reggio," may be studied with interest. The Dutch plate of one of those fearful stigmas to humanity, "An Auto da Fé" of the Inquisition, bears its record to all time of how religious hate would erect the cross of Christ on one side, and a heap of faggots on the other. A more gentle Dutch print represents the collection in Holland in aid of the persecuted Protestants of Piedmont in the seventeenth century. One of the charms of these records is that they are of contemporary date, or nearly so. A curious emblematical plate, by T. Cecil, 1632, of the objects of our Lord's Passion may be taken in illustration of the very numerous emblematical engravings, so common alike in Protestant and Catholic countries during the whole of the seventeenth century.

One of the uses of old engravings is to trace the history of costume. A series will afford a perfect record of all the various changes that have occurred, and this applies

to all countries where engraving has been practised. In the fifteenth-century engravings we may trace exactly the costume of every state of life and society. Let us examine a specimen or two. Here is Lucas Van Leyden's Pilgrims (1520). We see the cockle-shells and a pilgrim's sign on one side of the pilgrim's cap, while on the other is his wife's spoon and his own, illustrative of the fact that at inns articles of this sort were not supplied, and had to be brought by the guests. He has a costrel at his girdle, and on his back is a wickerwork pannier for his children. One child walks, having an owl on its shoulders. Notice the boots and the costume generally. T. Sadeler's "Marriage" gives as a faithful rendering of the sixteenth-century German costume, as does the same artist's "Marrying and Giving in Marriage." Notice the form of the knives on the table, and the primitive mode of placing dessert. The "Festival at Fontainebleau" fifty years later (1633) introduces us to an admirable study of French costume. The guests are all men, and all, cleric and laic, including the king, wear their hats,—a fashion which was highly popular indoors in all places, and which has not yet quite died out of our own country. The serving-men alone are uncovered. One plate of Titian's "Costume," which treats of that of all countries, will afford an example of all. The attack upon travellers by J. Van Velde is a capital specimen of his style, and also a good example of the costume of the Netherlands. The English soldier with a caliver is one of a large series. Notice the quaint costume, the iron or leathern helmet, the lighted match, the powder-flask. The other engravings before you bring down the history of costume to the commencement of this century.

No small use of old engravings is that they recall the men and the women who have passed away from us. The number of engraved portraits may be reckoned by the thousand, and they record for us with more or less exactness the aspect of many a man or woman whose name is still famous in England. They were engraved, for the most part, from paintings done from the life, and therefore they have considerable interest to us. Since it is impossible, among so many, to make anything like an acceptable selection, I have contented myself to place before you a small consecutive series of portraits of ladies. These commence with line-engravings by Lombard; then mezzotints of varying excellence, but of interest as examples of the style of Smith, Simon, Faber, Wilson, McArdell, &c.; while I have continued the series a few years past 1800 to include some of M. Mee's soft portraits, and a later style of engraving. We may here trace once celebrated beauties,—Ladies Carnarvon, Middlesex, and Carteret; the Countess of Essex, one of the beautiful Miss Grunings, and many others, are here. Sir Joshua Reynolds's "Strawberry Girl" is before you, as is also his Miss Farren, engraved by Fisher, 1781. The whole may be taken as illustrative of the peculiarly English school of mezzotint engraving, and of interest accordingly. I exhibit a few male portraits which may commend themselves to our notice for the elegance of their pose, or for the varying processes of their execution. Here is a portrait of George III., by Corbould, engraved by Bartolozzi,—one of a large class, where allegory is introduced with admirable effect. Why will artists produce stiffly-designed portraits when these old engravings point out to them a better way?

Old engravings can be applied to by antiquaries for records of old buildings that have long passed away from us, while a magnificent collection can be made of buildings which still remain to us. The German and Dutch series is of much interest, for the engravers produced views without number of the principal towns, not only of their own localities, but of Europe in general. Here are a few examples. The Bourse of Antwerp, now burnt and rebuilt, is an almost contemporary print, showing the building with

\* By Mr. E. P. Loftus Brock, F.S.A. Read at the Fine Arts Society, London.



capital detail, even to the design of the weatherecock. Meriau's view of Wurtzburg is a fairly excellent specimen of his style, and we can overlook the quaint old town, and study the design of every building, its towers, its castle, and the numerous churches. A few other examples follow, each remarkable for recording the appearance of old towns which are now materially altered. Here is one of Meriau's best,—his view of Ratisbon. Notice the perfect examples of Medieval fortification, the quaint entrance-gates, the fortified bridges. Here is Oberwesel, on the Rhine, with the now ruined Castle of Schonberg represented in its perfect state. Here is Ober-Lahnstein, and we can trace the original design of the Marixburg and of Stoltze Veste, two ruined castles which now frown upon the voyager; while to the right, the now beautiful ruin, the Romanesque church of Nider Lahnstein, is represented intact. Some of these, however, reveal a sad record of the brutality of our forefathers. In many the gallows is shown to be a prominent feature in the landscape,—a permanent structure,—while often the movable wheel, on which many an unhappy wretch has been broken alive, appears as a common companion. Meriau gives us a capital view of the Roman gate,—the Porta Nigra of Trèves, as it existed in his time, and until lately, in fact, crowned with the steeple of an ancient church, and many quaint buildings. Here are a few French examples, including, as a specimen, one of Israel Sylvestre's views. It is of Orleans, and represents the churches and buildings in ample detail as they existed nearly 250 years ago.

We owe to an English traveller a view of the beautiful church of St. Nicaise at Rheims, taken during its demolition at the revolution of 1798; and to a German a good view of the east end of the Notre Dame, with the central *flèche* destroyed at the same period. A scarce view of Paris shows the demolished church of St. Gervaise, with a lofty steeple (the tower only remains), and many another demolished building. The Italian series is of very remarkable interest, for it commences early in the sixteenth century, and is still continued. There is a fine series of views of the antiquities of Rome, which date from 1550; but I show the work of another hand,—very ancient views of old St. Peter's, the Farnese Palace, and the Forum. Michael Angelo's celebrated tomb is represented in a plate dated 1570; the design of the intended steeple of St. Peter's by a plate not much later; while we can study the condition of the Colosseum in 1703 in Specchi's plate. No reference to engravings could be anything like complete without notice of Piranesi's magnificent works, and I produce therefore his view of St. Paul's without the walls, now destroyed by fire, and rebuilt. The English series is sufficiently large to claim our best attention. Here are some specimens to show its scope. Hollar deserves our warmest gratitude for the number and the variety of his plates. A pupil of Meriau, we can trace by comparison how far he departed from the manner of his master, and excelled him. Here is a reprint of his plate of Windsor Castle, which is placed beside one drawn by the celebrated Knyff, and engraved by Kip. It is sixty years later, and we can trace the appearance of the keep before it was raised by Sir Jeffrey Wyattville. The old church of the town is also shown. King gives us a view of Ripon Minster with the three spires; and Hollar does the same, 1672, for Lincoln Cathedral; and we can well imagine the magnificent effect of this grand old minster on its lofty hill, when crowned in this manner. Harris preserves to us the design of the central lantern of Ely Cathedral, recently so ably reproduced by the great architect who has passed away from us. He shows also the spire on the western tower, the aspect of which calls for its rebuilding. Fourgeron gives us a good print of the ancient bell-tower of Salisbury, ruthlessly and unnecessarily demolished in the last

century. To turn to London for a moment. Here is Hollar's view of the choir of old St. Paul's, and beside it the west front of Westminster without its towers. I exhibit also Canaletti's view of old Ranelagh, and Toms's view of old Shoreditch Church. I will not linger over London views, interesting as they are, for the Crace Exhibition is still open at South Kensington. To afford some insight into the number of old engravings: Mr. Crace's collection in its assorted state numbers there over 1,500 examples. How limitless, therefore, must be the number, when there are so many of one city only? Hollar gives us a poor plate of Hereford Cathedral, showing a central spire and the old western tower. It is placed near a view taken on the day when this ancient tower fell, burying the whole of the front in ruins. The engraving is a capital record of the appearance of the building. The brothers S. and N. Buck produced a vast number of views about the middle of the last century. I have selected as examples one of the Castle of Cambridge, now demolished, and the panorama of Reading. What a change has come over this town! Here are the demolished church of Reculver, the old Bridge of Newcastle-on-Tyne, the Cross of Coventry, and Mitcham Church, all demolished, as is also the ruined church of St. Chad, Shrewsbury, which fell down about 1778. St. Winifred's Well is shown in a scarce print, the quaint sign of Schoale Inn is shown by another: the forlorn aspect of Scarborough in 1799 is ably shown by Lowry's plate. To show how limitless is this subject, here is the aspect of the church of the Recollect Fathers, all the worse for the bombardment, at Quebec, by Grignon, 1761; and here is the interior of the old dome of the Holy Sepulchre, now destroyed, done by an Italian hand.

To many people one engraving is like another, but the various processes are of much interest. One of the uses of old engravings is to show these, and with a few examples I will conclude. Here are charming examples of line-engraving, executed by the graver on the copper direct, by J. Sadeler and Mallery, and one of Mellan's wonderful graver. I exhibit his "Veronica," 1649. The head of Christ is engraved by a circular line drawn by hand, commencing at a point in the centre, the whole effect being produced by deepening the action of the graver where wanted.

Thourneycr's delicate style is shown by his Laocöon; while of etchings, I produce, as specimens, examples by K. du Jardin, 1642; Ostade, 1641; Berghem, Testa, Salvator-Rosa, and Melchior Kussell.

Special mention should be made of Claude Lorraine's view of the Forum, 1636, and of Benedetto and Silvestro Castiglione, whose works will amply repay examination.

Rembrandt's portrait of himself, 1639, is a fine plate, and completes a group of etchings of great diversity. Of the processes of printing in bistre, in tints, and in colours, there are several examples,—one, a woodcut of Raffaele's cartoon the "Miraculous Draught of Fishes," being dated so early as 1609.

I have already spoken of mezzotint, and of the style of Cosway and Bartolozzi. It remains, therefore, but to show a few Continental examples of this beautifully-stippled style. I have now traced some of the uses of old engravings. How many more could have been mentioned did time admit, and how readily other illustrations could have been given, even of the points that have been thus hastily passed in review! The walls could readily have been filled with engravings bearing upon each one of the subjects named, and examples might have been obtained of much more artistic merit than those before you. My object has been, however, simply to place on the walls ordinary engravings, each of but little intrinsic value comparatively, and quite within the reach of any collector. They are obtainable now, but they cannot be reproduced as originals. The world is large, and men and women of

artistic tastes are on the increase. It is, therefore, not likely that the opportunities of to-day will remain to-morrow, and the facilities to our hand now will surely decrease. When we consider the losses of art works by accident, by decay, and by exportation to remote parts of the world, it is evident that what I state is capable of demonstration. I hope that what has been said to-night will direct more attention on the part of lovers of art to these beautiful works, and that, in addition, this grand old art of engraving, which deserves so well at our hands by reason of the worthy work it has done in the world, may have, itself, more interest shown to it. It ought not to be that in England in the nineteenth century, when we talk so much of art and art matters, one of its principal exponents should be suffered to languish for want of patronage.

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

MEN'S professions and trades, when the men are of literary tastes, can be guessed at by their writings, or by the number of words of a technical character they are in the habit of using. We do not mean to say that the occurrence of a few technical terms in the writings of an author is a sure criterion of his original or present calling, but the constant repetition of words not commonly used—words in explanation of scientific, art, mechanical forms and usages, processes and manipulations—points to the user being of, or closely connected at one time or another in his life with, a particular profession or craft. Perhaps there is no writer in the English language whose writings have been submitted to such an exhaustive analysis or distillation as Shakespeare, and were he alive to-day he probably would smile if not laugh outright at several of the whimsies of his dramatic and philological critics. In the dramas and poems of Shakespeare occur numerous technical terms, showing that he or the writer or writers of the plays that bear his name were deeply read. The identity of Shakespeare in at least several of his plays with their hitherto acknowledged author is beginning to be disputed. There is no use in Shakespeare's admirers resenting the dissection of writings or his claims to be considered what he has been for high three centuries. Old systems of astrology, astronomy, and chemistry have been knocked on the head, old theories of nature and human nature sadly battered, geology and revelation are in fierce conflict, according to some, but can be harmonised according to others. Darwin is denounced and vindicated by separate schools of thought, and a thousand and one old views and grooves of faith are being ruptured to the intense chagrin of many, and the new delight of more. When such revolutions and upheavings are taking place, we must not wonder that Shakespeare's claims are disputed, and that all things above and below will, if they are not at present, be submitted to an anatomical ordeal. But to return. What was Shakespeare originally—a shepherd, or deer stealer, a hind or a handicraftsman? With certainty we know not. One of his latest commentators, and an able one in a particular direction, has gone far to prove him a builder, the commentator or critic being of that profession himself. Numerous, it will be seen, are the technical words used by Shakespeare in his several dramas bearing upon the building art; but in the works of our own Swift, prose and poetry, numerous also are the allusions to building matters and other technical matters. In the works, too, of Bishop Berkeley, the Irish churchman and philosopher, many technical terms or allusions to science, art, and trade matters will be found. The "Querist" of George Berkeley will show that he was well posted up in general knowledge, though he may not often use strictly technical terms to express his ideas.

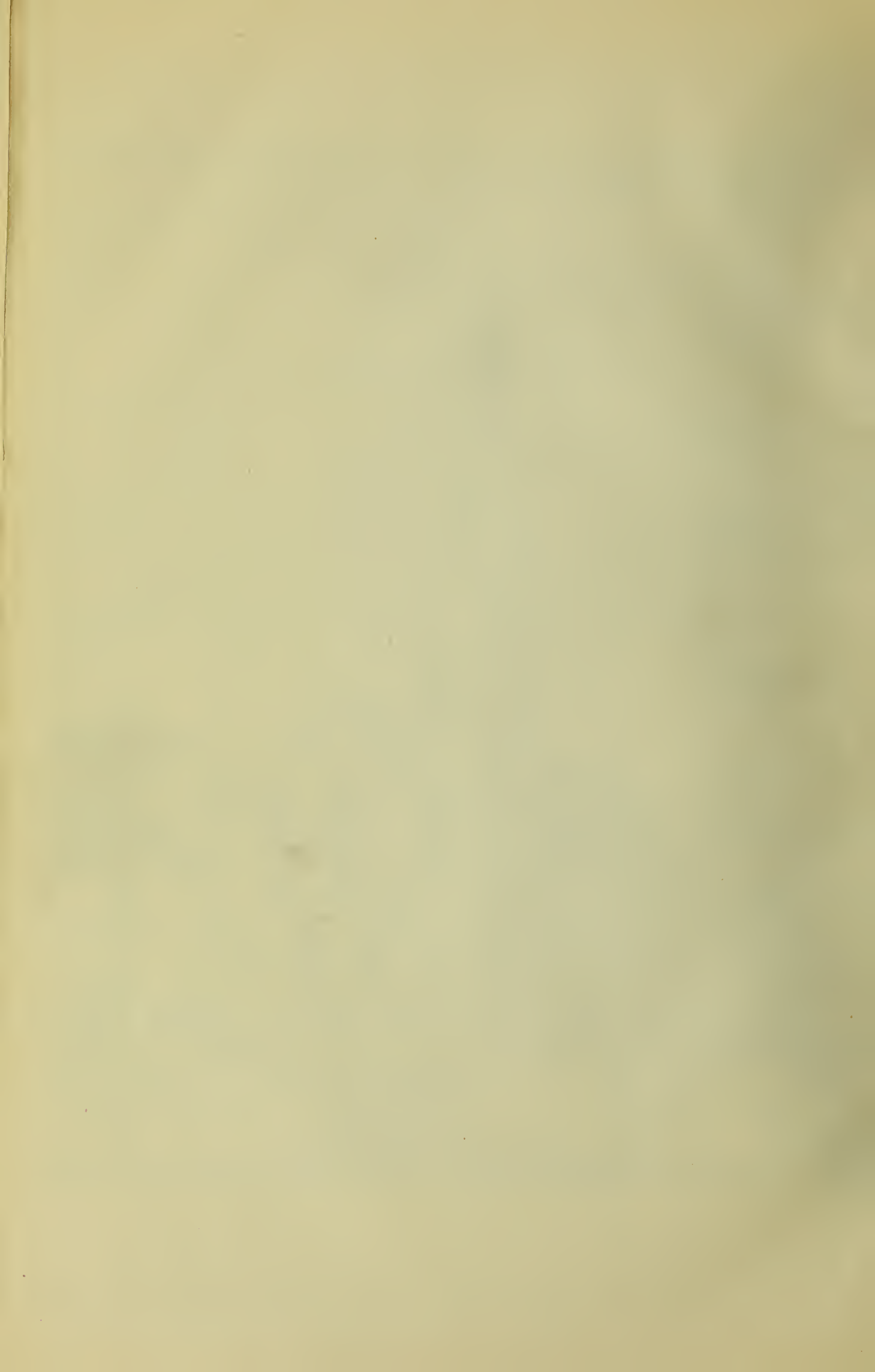
Craftsmen who become authors, and archi-





PRESBYTERIAN CHURCH. GRANSHA. COUNTY DOWN. IRELAND. BY CHAPPELL & CO. ARCHTGS. NEWTON ARMS 1879







fects, engineers, and medical men, even in their ordinary writings, are prone to use technical words, but we think that the educated and skilled artisan is more prone to do so than any of the others, named or unnamed, and for very obvious reasons. A thinking, working, and literary craftsman, who has worked for several years at his trade, will very often be found to use in his writings terms belonging to his trade or kindred trades with which he has been in contact. The English language, perhaps, more than any other mother tongue, is largely made up of technical words, or words having such an origin. Particularly within the last hundred years many technical words have been incorporated with the language of the people, and are now in constant use. Some words, and even those of purely technical or mechanical origin are going out of use, becoming obsolete through more causes than one. Particular words no longer express what they once meant, in consequence of the usages or manipulations through which they had their origin having died out, or a different state of society and manners being now in existence. Several old slang terms have become proper words, and once correct words improper ones. Yearly new slang terms are being adopted and old words taken to express more than they meant a century since. We may deplore the use of slang and cant, but the tide cannot be pushed back by any known means that we are aware of. Laws may be passed, colleges and schools or the heads thereof may ordain, and grammarians thunder in vain, the people may listen, but will they obey? Ignorance and vulgarity are still strong, and the language of the streets and alleys, the courts and workshops, the marts, the mines, and the fields is too strong for the statute laws or the schools and colleges. Crime in itself is a great producer, a great creator of cant and slang, for they are the weapons of the criminal, the tools and instruments for the successful prosecution of his task. Were the criminal to call a spade a spade, a theft or a new deceit by its proper or recognised name, his fellow-men might overthrow his design, or the guardians of the peace detect his imposture and himself. The habitual loafer, mendicant as well as habitual criminal, is a thinker and a worker, a maker of our language, as well as a breaker of our laws. Falsehoods are necessary to the existence of men that will not honestly work for a living, and new systems of imposture must always give rise to new cant and slang terms for the successful prosecution of knavery by the fraudulent or criminal classes. And here we might ask, can a habitual criminal or impostor, no matter how he is outwardly disguised, be known by his language? We are inclined to believe that in many instances he can. The language or words common to his calling or companions will break out, particularly if he is not a well-educated person. There is a proverb which says, "Show me your companions and I will tell you what you are;" and to a great extent it may be accepted as a truth that a man or woman's language or conversation will prove an index to their character and that of their associates and surroundings.

We took a walk within the last few days through some aristocratic, legal, and merchant quarters of Dublin now in ruin, yet thickly matted with a misery-crammed population. The sights and scenes they conjured up, the memories and associations they recalled, and the thoughts they suggested, were too many and too overpowering to reproduce here. Around and through the woe-begone Liberties and Coombe, Kevin-street, Patrick-street and Close, Bride-street, and Golden-lane, Chancery-lane, Ship-street, Hoey's-court, Castle-street, Fishamble-street, Snock-alley (now Exchange-street), and out and about there, and in numerous other courts and alleys off the above-named streets. There are histories, and deeply interesting ones, connected with them all, of great men—aye, and women too,

and of important events that have never yet found, and perhaps never will find, any fitting record. Who can sit down in this poor and emasculated city to write of the past, where honest intellect is snubbed, and God-giving genius ostracised, if not devoted to party or unprincipled purposes? The old city is in ruin, and dirt and disease are plentiful, and nearly always together; yet churches are going up, and the patriotic clergy of both denominations are dying out. If they are all good preachers and hard-workers for the church and the church alone, and humbly obedient to the bishops, the prelates will promote in and out of season, but if they are intellectual workers for their poor old country they are passed over and tabooed. Oh! what tales and true ones our poor pen could not tell of bright days, of buried hopes and baffled aspirations, of intolerance on bishops' thrones, and in rectors' and parish priests' pulpits, of brilliant curates crucified by tyrannical prelates and their agents! But enough, for we are not in these pages political or sectarian. Dublin is sepulchred, her blood is flowing, and those who could and would raise her by their genius and moral worth are allowed to pine by the members of their own church. Mammon is the god and the idol of the many, and few are left now in the city who are willing to work for the pure love of a native literature or a native art. Dublin is growing demoralised, her sons and daughters of the rising generation are unlike their predecessors, and though the morality of our women is still, as a whole, as high perhaps as ever, the Cornelias are few and far between. Mothers now rear sons and daughters, or rather the latter now rear themselves, and are prone to look down on the old world notions of their parents and grandparents. Old Dublin is in rags and wretchedness, and new Dublin is dressed in "shoddy." The sexes are approximating in dress, and pinchbeck, adulterated silk and tin-foil decoration is everywhere apparent. This is the New Town, messieurs, mesdames, gentlemen and ladies of fashion. Sweep along the flags, then, and dream not of the old city of your grandsires; it is the city of the dead and the dying, the city of our olden glory and our present shame.

*Apropos*—Here is a picture or rather a phase of old city life in the last century, from the pen of one who knew the city when he was a boy, and who thus gave us his recollections when "A Quinquagenarian" forty-seven years ago:—"The attorneys of the Old Four Courts [at the back of Christ Church Cathedral] were as distinct as the lawyers of the day from those of modern times. I remember, when a youth, being brought into the office of one of the most eminent in Dublin, who dwelt in that then fashionable resort of attorneys, Chancery-lane [off Golden-lane], instead of residing, as now, in some of the squares, as men of ton and elegance—as the rivals of all that was exquisite in taste, *virtù*, equipage, and horse-flesh. Your attorney of that day was, to be sure, equally keen, equally conscionable in the length and composition of his bill of costs; but he was a vulgarian—a provincial—*abroqueanier*. (Reader, pardon the coinage.) Perhaps it may be as well to stick to the single portrait I have alluded to—my uncle's attorney in Chancery-lane—he was not a bad or extra specimen of his race. I remember when ushered into his back parlour, which served him for office, dressing-room, eating-room, and, I believe, sometimes sleeping-room, what a dusty, dingy, dark, fetid hole it was. The man was not out of keeping with his domicile—he looked like a great bloated spider in the centre of his cobweb. I have him before my mind's eye, as he waddled off his triangular chair to salute us; his snuff-stained cadaverous face overhung by a brown scratch wig that stuck away on his head, and seemed to have grown too small for his cranium; his natural black hair thrusting itself out over his left ear, and hanging extravagantly from his poll behind;

his abdomen immensely protuberant, and as his inexpressibles scorned the aid of suspenders to keep them up, they fell apart from his waistcoat, and leaving a goodly share of not quite clean linen to be seen, they hung in loose folds about his thighs, and caused the corduroy of which they were composed, to whistle as he waddled about the chamber. His accent was in the rich brogue of the Co. Limerick; and nothing could exceed the familiar, gossiping, flattering, slevdering fondness with which he complimented my uncle, who was one of his oldest clients. I have reason to remember Tim—well; the best part of my worthy relative's property passed into his hands instead of mine, in liquidation of his tremendous volume of a bill of costs, which, whether they were taxed in hell, and under the encouraging presence of his satanic majesty, I do not remember."

Christ Church-yard, where the old Four Courts existed in the last century, was popularly known as "Hell," and there was a thoroughfare through from Fishamble-street to Winetavern-street. Chancery-lane, above alluded to, passing from Golden-lane to Bride-street, has several of the old houses still standing, once resided in by celebrated judges and lawyers of a different intellectual and moral type than the attorney described by the writer quoted. The houses, however, are in ruin, but their broad staircases, pannelled wainscotted walls and partitions and wooden cornices can still be seen. Those who are curious can hunt up the names of the great legal and other worthies who once resided in Chancery-lane and out and about there, by referring to the old directories of eighty and a hundred years ago and upwards.

H.

#### THE ART OF THE ITALIAN RENAISSANCE.\*

(See page 154 ante.)

THE lecturer announced that on the present occasion they had to study the art of Venice. As early as the eleventh century, Venice had made her mark as a great maritime power, while in the twelfth century she had become the mistress of eastern commerce, and the banker of Europe. The characteristics of Venetian art are as different from those of the art of Florence or Sienna as her political history is from theirs. The Florentines, like the Athenians, and the French of the Revolution, lived in a whirlpool of new ideas. Their political life was a series of catastrophes and metamorphoses. The Venetians had something of the ponderous adhesiveness and conservatism of the English. The Venetian school was from the first a colour school. The early Venetian carried down the Byzantine traditions to a much later period than the painters of any other of the Italian schools. They remained unaffected by the influence of Giotto. After speaking of some of the most prominent painters of the school of the Vivarini, the lecturer referred at some length to Carlo Crivelli, of whose works, so scarce in Venice, there was quite a unique collection in the National Gallery. His pictures, besides their intrinsic value as works of art, are most interesting historically, as links between the old and new schools. In general method Crivelli is an adherent of the old system, an archaic painter, but he is affected with all the new influences, and naively reproduces the mannerism of the Padua school after a fashion of his own, so that to study his pictures is to study an epitome—and an interesting and vital epitome—of Venetian art from the Byzantines to the Bellini. The style of Crivelli is a complex one—made up of several strangely incongruous elements, which are welded together into something like harmony by his very individual genius. Crivelli has laboured to lay a few stones of the Tower of Babel, which the bold and lofty building of M. Angelo, Correggio, and Raphael at last

\* By Dr. John Tothunter. Being the fourth of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.



brought crashing down. He aims at ideal grace, and ends in petty affectation; he gathers himself up for a supreme effort after sublimity, and falls into grotesqueness and grimace; yet his failure is not contemptible, the effort being so sincere and painstaking—and it is not always failure. He has occasionally struck a sublime note and produced an episode full of naïve charm and natural grace. In the National Gallery, London, Crivelli is seen at his best. Anyone who studies him there without conceiving for him an affectionate admiration must be hard to please. Here in many instances he has succeeded in harmonising his stern and quaint drawing with his rich colour—the result of the whole being an effect of cheerful solemnity which gives quite a unique atmosphere to his pictures. He opens to the sympathetic imagination a garden of Paradise—less sentimental and more robust and real than that created by Pungino, steeped in a more fervent sunshine, which reveals details with something of the startling distinctness, so sensuous yet so spiritual, that stings us in some of Browning's poems. And through this paradise move a throng of saints, each as vividly revealed as a distinct personality as the birds and fruits and flowers that surround them are as distinct objects of sense. Crivelli is weakest in his women. He has an ideal of grace which unfortunately betrays him into meagreness of figure with affectation in the pose of head and arms—all his thin maidens, with sharp-pointed chins, self-consciously practised deportment. None of them know exactly how to wear their heads and arms and hands. His St. Catherine daintily applies the tips of her tender fingers to her wheel as if she were expecting to be complimented on their whiteness, and the Virgin lifts a shroud of muslin drapery from her child as if she were performing some strange finger exercise in which each finger had to exhibit its several dexterity. The great school of the Bellini took the torch of art from the hands of the Vivarini, and carried it through the fifteenth century down to the times of Giorgione and Titiano. Jacopo di Piero, usually known as Jacopo Bellini, was a fellow-student of Antonio Vivarini. His works appear to have been altogether in fresco. It was reserved for his sons to perfect the method of oil painting. Great love seems to have existed between the two brothers, who, though working to some extent independently, constantly assisted each other, Gentile being, it was said, the more learned in the theory of his art, while Giovanni, or Gian, as he was called, was the more perfect in its practice. The early history of the two brothers is so much alike that to describe that of the one is to describe that of the other. Educated in their father's workshop, in Padua, they both began to paint in the manner of their father, but influenced, and well influenced by Montegna, in such a manner that it is often most difficult to decide as to the authorship of the paintings produced in this Padua school of Jacopo Bellini. In some respects the art of Gentile Bellini contrasts favourably with that of Montegna, who, with all his power, was something of a pedant. If he resembles Sebastian Bach in his application of the canons of science to his art, he falls somewhat short of him in subordinating these canons to imagination and passion. Perspective in the fifteenth century painting to some extent corresponded to counterpoint in the music of Bach's time—that is to say, it was a recognised means of displaying the painter's skill and ingenuity. Accordingly, Montegna, a great perspectivist, sets himself to solve difficult problems, which when solved have but little interest for the non-scientific spectator. Gentile Bellini's life was a prosperous one. He was overwhelmed with commissions, and painted some of the important historical works in the Ducal Palace, and he had the rare honour of being the first teacher of Titian, who entered his school when but nine years of age in 1486. Gian Bellini was five years younger than his brother, whom he outlived nine years, dying

at the advanced age of ninety. His early stylo was formed upon that of his father, old Jacopo, but much affected by Montegna. In middle life he appears to have worked in friendly rivalry with his brother, but how far their workshops were independent seems doubtful. Gian appears to have at first timidly trodden in his brother's footsteps as regards oil painting, but finally he became a consummate master of the process and the greatest colourist that Italy had as yet produced. In thus perfecting his new art his ideal underwent an important change. With the hard and dry method of the older school, he abandoned the stern design of Montegna for a richer and more flowing and more beautiful style of composition. The Madonnas of his prime, with their plump and buxom beauty, prelude the voluptuous Magdalens of the later painters, Titian and Giorgione, his great pupils, who, while losing his rare spiritual qualities, inherited the sensuous body in which these were clothed, and gave it a new soul. Gian's great picture representing the "Agony in the Garden," is a most remarkable one. There is in it an imaginative power rarely, if ever, attained by Bellini elsewhere. In the foreground the three apostles lie asleep, while at a short distance Christ kneels upon a little hill, the angel with the cross appears among the clouds of dawn. In the valley below Judas is seen approaching with a body of armed men. The landscape, full of the strange sadness of early morning, is beautiful in itself; the somewhat arid country, with its grass patches and scattered trees; the city on a distant hill, clearly revealed against the pale sky, with its grey clouds, touched in their under surfaces with salmon colour; the stream in the middle distance, running chill under its banks damp with dew; and over all the solemn twilight and cold, clear atmosphere of dawn, producing an impression of reality very rare in works of this time. Its full significance is only felt when taken in connection with the kneeling figure conspicuous in the centre of the picture—so utterly alone in the midst of the world—where morning finds his friends asleep and his enemies awake; where, for answer to his prayers the Angel of the Agony stands pale and terrible up on the clouds, holding the cup that cannot pass from him until drained to the last drop. There is a weird horror in this figure of the angel, who appears as a naked child, pale as a ghost, standing with statue-like tranquillity upon, not among the clouds. It thrills the imagination like a real apparition, making the blood run cold like that brief stage direction in Macbeth, "An apparition of a bloody child rises." The lecturer concluded by referring to several other works of Bellini.

#### THE PROPOSED NEW MASONIC ORPHAN SCHOOL BUILDING.

THE following were amongst the resolutions adopted at a meeting of the Board of Governors of the Masonic Female Orphan School held at Freemasons' Hall, Molesworth-street, on the 3rd inst. :—

That having regard to the interests and requirements of the school, it is not desirable to expend on the erection and building of a new school, out of the invested capital of the charity, any greater amount than a sum of £5,000.

That the additional amount required to complete such new buildings shall be defrayed by subscriptions and donations from members of the order towards a fund, to be called "The Special Building Fund."

That the trustees are hereby authorised and empowered to apply £5,000 of such invested capital in the erection and building of such new school upon the site and according to the plan therefor already determined on by the board.

That in order to receive ample funds for the completion of the buildings in accordance with the plans approved by the board, it be a direction to the trustees that no advance is to be made from such allotted £5,000 of the invested capital until the list of contributions to the special building fund shall have reached £5,000, and at least £2,500 lodged in bank to the credit of that fund.

Notice of the following motion was given :—

That all the donations to Building Fund paid within the three years ending December, 1881, entitle the donor thereof to the same privileges as vice-patrons, vice-presidents, or life governors, as they would be entitled to for similar subscriptions if paid in one sum to the ordinary funds of the school.

#### CORRESPONDENCE.

#### THE IRISH INSTITUTE OF ARCHITECTS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Your leading article in last number has not appeared one moment too soon—the architectural profession in Ireland is in a condition of disorganisation and decay. Such a state of things is not to be wondered at, when the profession have no representative body to protect their rights or redress their grievances. Having been engaged in the profession in this city for many years, and being a member of the so-called "Royal Institute of the Architects of Ireland," I have been more and more disgusted at the apathy exhibited by that body, which only appears like a meteor, to disappear as suddenly and unaccountably, and is too lofty to look to the dignity of the profession and qualifications of its own members, but which appears only where self-glorification is to be exhibited by its self-elected council, by getting up a *conversazione*, or intruding themselves on an incoming viceroy, or in giving a dinner to the President of the British Institute. The three tailors of Tooley-street never spoke with more emphasis or absurdity than do the present council of the R. I. A. I. when they lead the public to believe that they represent and guide the profession. If they have any influence, why do they not prevent architects from touting for work in the most disgraceful manner, in some cases offering to do the work for half the usual percentage, or even for nothing, if the opportunity offers of "cutting out another architect?" I have often found that such men, members of the Institute, had gone to my clients asking to be permitted to submit plans on approbation ("No cure, no pay," like chimney doctors) where I had been regularly employed to prepare plans. I could mention names of architects, eminent in the profession, who have been mean enough to interview my clients with a view to subvert me, and can give an anecdote that will amuse your readers. Some time ago a certain party determined to improve a building of which he was owner, and consulted an architect on the subject; the news getting abroad, another architect, and a friend of the first one, interviewed the proprietor, and offered to prepare plans for half the usual fees; on the next day a third architect (a friend of the other two) offered to plan and superintend the entire alterations for *nothing*. Whilst the members of the profession, without any regard to honor or decency, are thus cutting one another's throats, is it to be wondered at that pretenders are springing up in every direction, and calling themselves "architects"? Several cases have come under my notice recently where carpenters and others have called themselves architects, and prepared and submitted plans as such. If architecture, the first of the arts, is thus to be degraded, on whose shoulders is the blame to rest? I say on the council of the Irish Institute, which professes to lead the profession, and whose members look on its rules as a dead letter in their practice. If architects only worked for their proper fees and conscientiously discharged their duties, they would not be at all overpaid; but in all cases it will be found that those who accept half fees and act unprofessionally neglect their duties, and the unfortunate client who employs them suffers much more than if he had paid the full fees to an architect who would look after his interests.

The Architectural Association of Ireland during its brief existence did some service to the junior members of the profession by



bringing them together in social intercourse; and I am convinced that if it could be revived it would be for the benefit of its members and the general good of the profession. I feel that it is hopeless to appeal to the Institute, as at present constituted, to do anything, and would ask you to receive the names of any architect who would join the revived association. If the former members of that body would combine to revive it, and would ask their friends to join, I am convinced that much good would accrue; points of practice could be discussed, and pretenders exposed, and both the public and profession would gain much by the existence of such a body.

AN ARCHITECT.

P. S.—I enclose my name, but not for publication.

[The above communication came to hand too late for our issue of 1st inst., for which it was intended.—ED. I. B.]

SIR,—Being from home on an inspection of ancient coastguard stations, the churches of the early Christians of the county Antrim, and other public buildings, I had not an opportunity until to-day of seeing the *Builder* of 31st ult., and Mr. Drew's able and exhaustive letter. I am sure you appreciate the nice display of feeling by which he does not wish to raise an unfriendly controversy with you; such courtesy is grateful and refreshing.

It is his modesty to consider our numbers in Dublin so few (of course he means comparatively), but I find the list set down in Thom's Official Directory to amount to nearer four than one score, all recognised, and are they not all honourable men? But what a wild set of "fellahs" we fellows must be who fly from the Institute meetings which possesses all the charms of a secret society, to the other diversions, social, literary, scientific, nautical, &c., &c. It is a good thing to hold the mirror up to nature; had I not seen Mr. Drew's letter I should not have suspected I was such a festive "cuss." He wishes to give the details of one of the breakfasts for the information of the IRISH BUILDER and Irish architects who may consider professional organisation of no use whatever. Goodness gracious! how stupid I must have been all these years to suppose that the IRISH BUILDER was ever the advocate of professional organisation!

However, it is the only journal the profession have in Ireland, and it is not nice that no report of that meeting appeared in the last issue, which was published simultaneously with its London contemporary, but then we don't like to make a flourish—at home—and consequently don't give the place or date of our sederunts; but I hope people in future will not deem the breakfasting with the faithful "seven" of the Royal Institute of the Architects of Ireland as analogous to dining with Duke Humphrey. The *Agenda* will of course be worked out at a great public meeting probably in the Round Room of the Mansion House. The first detail as to a new secretary so upset me I was unable to read more—excepting the president's offer, which will, no doubt, be received "*non con.*"

In conclusion I would suggest the advisability of washing our soiled linen at home; there is no necessity to trouble London journals when we have a faithful representative paper in Dublin, and we should keep in mind the old adage that the bird who neglects the sanitary condition of his own nest will become popularly objectionable.—J. S. S.

Sugar-house Entry, Belfast,  
12th June, 1879.

As to the threatened establishment of another architectural association, a sexagenarian correspondent writes:—"I don't think the threat will be productive of any effect—what should be sought would be the resuscitation of the all but departed corpse of the Institute, and the removal of the influences which have had the effect hitherto of stifling discussion and all interest in or at the meetings. It has been too long looked upon as

a property or child of the Board of Works, a family borough, or baby-house!"

#### GOVERNMENT MONOPOLY.

SIR,—I have heard with some surprise that the Ordnance Survey Department, Phoenix Park, are in the habit of undertaking private work, such as putting maps on leases, and making surveys for private parties (not Land Court). Can any of your readers say if this is so, as, if it is, it is quite time the civil engineers and land surveyors of Ireland should unite to oppose such a gross piece of monopoly. I could hardly believe the statement made to me to be true, but that some fifteen or more years ago, a somewhat similar act was done by another Government department, which has been a source of serious loss of income to the profession, as private parties can never compete with Government in such matters, and I for one will most gladly co-operate to prevent the perpetration of such another job.

CIVIL ENGINEER.

Greystones, June 13th, 1879.

P. S.—I annex my name and address, but not for publication.

#### SCIENCE AND ART IN IRELAND.

SOUTH KENSINGTON AND STEPHEN'S-GREEN.

A REPORT has been for several days before the public, issued by "The Committee for Promoting an Inquiry into the South Kensington 'Management' of Science and Art in Ireland." Grave charges are preferred under several heads against the South Kensington authorities for the careless, unscientific and extravagant manner in which the Dublin branch has been managed. If these charges are sustainable as a whole, the Stephen's-green institution and some of its officials must stand condemned. On the whole we think an inquiry is called for in the interest of the Government and the country, and not less so on the part of the individual whose case forms an important part of the report. We give below what is stated under the 6th and the 12th heads of the report—the former in reference to "How the Money Goes," and the latter, which forms the conclusion, dealing with the case of Professor Galloway:—

"How the money goes.—In the parliamentary returns, the expenditure on new works, alterations, maintenance, repairs, furniture, and fittings, during the eleven years, is given as £6,481. Those acquainted with the institution will agree with us that there is nothing to show for this large expenditure. The institution is as dull and as dingy now, both in externals and internals, as it was eleven years ago. This average expenditure is per annum, £590. In the two years under review in Jermyn-street, the average expenditure for furniture, fittings, &c., was £432. Can this large expenditure at Stephen's-green be explained? Next, the 'incidental expenses' in the eleven years was, at Stephen's-green, £3,835, average £349 per annum. The mean for the two years, at Jermyn-street, was £217. How is this larger expenditure in the smaller establishment to be accounted for? 'Salaries and wages' pretty uniform in amount each year in both institutions, stand thus for 1877:

In Jermyn-street, £4,971.	In Stephen's-green, 4,674
Deduct Fees .. 1,307	" 323
£3,664	£4,351

An excessive expenditure, the 'saving' in abolishing the directorate notwithstanding. Why is this? Up to 1864, the secretarial department was managed by one clerk, at £220. No one before the Donnelly Commission or the Parliamentary Committee, gave evidence that this provision was insufficient; yet, since then the staff has been increased by a 'secretary,' at £400, and a 'stationery clerk,' whose salary is not given in the return. Thus, what was sufficiently provided for at £220, now costs from £700 to £750 per annum. Add to this the salaries of professors, without students, and porters, &c., without duties, and the reason for the excessive amount of this item may be guessed at. It is evident South Kensington troubles itself but little with either the nominal reason for, or the amount of the items of expenditure. The Dublin officials are not obliged to give in the Departmental Report what the Jermyn-street officials give, the expenditure under every head. They are allowed to suppress items that only through an order of the House of Commons have

been made public. South Kensington is above such petty details. The following will illustrate the value of South Kensington Supervision:—In 1867 an order was made by the Lord President of the council, the present Lord Lieutenant of Ireland, the Duke of Marlborough, that an official catalogue of the apparatus, &c., in use in the college, should be "forthwith" prepared, and for his trouble in the preparation of this catalogue, and for acting as future custodian, an increase in his salary of £100 per annum was granted to one of the officers of the college. Fourteen years have now passed; the increased salary has been punctually paid, but no official catalogue has been published, South Kensington never troubling itself to enforce the order of the Lord President."

Injustice to an individual has led to the opening up what we hope will be considered an important inquiry in a public point of view. It is to be hoped the inquiry will be vigorously prosecuted by those who represent Ireland in the Imperial Parliament. If it should be found that money is wasted at the Royal College of Science, many means for the useful application of the money to Irish purposes may be found. Four thousand pounds saved at Stephen's-green might be made available, for example, for artisans' drawing or science schools, and, on the general question of South Kensington *versus* good, honest, local management, the time spent in inquiry would be well employed. Professor Galloway, during his twenty-three years' residence in Dublin has warmly interested himself in Irish affairs; his students, his laboratory, and some local improvements, occupying all his time. In the discussion of the Varrity water question in 1861, Mr. Galloway and his assistant, Mr. Plunkett, took an active part. No less active were they and their laboratory students in considering the question of Dublin Main Drainage. Mr. Galloway was one of the directors of a chemical enterprise at Galway, intended for the development of Irish resources by teaching our people the profits to be derived from the extraction of iodine from kelp. He laboured well and successfully for the instruction and advancement of his students. Irishmen are not ungrateful. They cannot see this man sacrificed without a fair trial. South Kensington was prepared to pension him in 1862, and this year he had but to obtain a medical certificate to be recommended to the Treasury by "my Lords," for a retiring allowance. He has refused those offers, demanding justice and nothing more. This is the issue between him and a department known to us in Ireland only by its intrigues, by its waste of public money, and by its general indifference to our wants and wishes.

#### NOTES OF WORKS.

The Cork Improved Dwellings Company have commenced a third lot of houses for the artisan classes on the north side of the city. The site is at the north end of Richmond Hill, and commands a fine view. The company have accepted the tender of Messrs. E. and P. O'Flynn for the erection of ninety-six houses and a reading room, from the plans and under the directions of William H. Hill, architect. The expenditure, including foundations and forming site, &c., will be over £13,000. The houses built by this company are uniformly small, their principle being that it is far more desirable to give a house, however small, to a *family* than to congregate a number of families in one huge house. Every house has its own yard, outside conveniences, and pipe water; and an efficient caretaker sees that the company's rules and sanitary regulations are properly carried out.

WOOD PAVEMENT.—A portion of Great Britain-street roadway is being laid with wood by the Improved Wood Pavement Company, of London. The ground having been prepared, a bed of concrete is laid, on which the blocks are placed in rows across the street; each block is separated by two iron studs, by which a regular joint is secured. Hot bituminous mastic and grouting are then run in, and the surface top-dressed. The contract is for 1,000 square yards at 13s. per yard. We are given to understand that "the saving in cleaning is very great, particularly where wood has taken the place of macadam; a comparison of the cleanliness of the wood with the mud of the macadam, and the silence of the wood with the roar of the traffic over the stones, are undeniable advantages."



### BILLS OF QUANTITIES: THEIR PROPER RELATION TO CONTRACTS.\*

THE modes of measuring artificers' work vary considerably in different parts of the country; and, still more markedly, in other matters connected with contracting the practice is diversified. In some localities the quantities are taken out by a special class of men variously styled quantity-surveyors or measurers, in others by architects; in some they are taken out with the greatest minuteness and with elaboration of detail, while in others the descriptions are general and comprehensive, and the contractor is obliged to interpret the details for himself. In some it is customary to base the contract upon the plans and specifications alone, while in others the practice so greatly differs that the contract is based upon the bill of quantities alone, and there is no such thing as a specification referred to at all. In these circumstances it is extremely probable that defects exist in many, if not in all, the methods of contracting for buildings now generally in use, and it is perhaps equally probable that each of the various methods possesses certain merits peculiar to itself, or more or less common to the others. An earnest and unprejudiced investigation into these peculiarities cannot fail to be interesting and profitable; and I am sanguine enough to hope that it may lead to the conviction that the construction of a system superior to any now in use is not only desirable but practicable.

Before proceeding to consider the various modifications which have been made, or which ought to be made, in the relative positions of building-owners—or proprietors, as I shall call them—architects, surveyors, and contractors, I wish to direct your attention very specially to the elementary truth, which we must never lose sight of, that in contracting, the normal state of matters is this: the architect, having completed his plans and specifications, occupies in relation to the contractor exactly the same position as his client the proprietor, who might, in point of fact, get in tenders himself without the further intervention of the architect. It is generally convenient for the proprietor that the architect should get in the tenders for him; but in doing so, the latter, if he has followed his employer's instructions, and represented what is wanted by sufficiently explicit plans and specifications, incurs no other responsibility. He has nothing to do with the means which the builder may employ to ascertain the value of the work. One builder may measure the work himself, another may get some one to measure it for him; one may have it minutely measured, another may do it roughly, or even guess what the value should be. All the proprietor, or his agent the architect, wishes, is an offer *bonâ fide* for the execution of the works he has illustrated and described. That, I say, is the normal relation of the parties in estimating. In these circumstances it is a matter of indifference to a proprietor or his architect what quantities of materials a contractor uses so long as he executes his work satisfactorily in accordance with the plans and specification; the onus of ascertaining how to do this at the smallest cost rests upon him, and competition with others effectually keeps him from careless or wilful exaggeration. This responsibility was in former days fully accepted by contractors, and men who understood their business thoroughly had no difficulty in tendering without the intervention of a third party; moreover, they enjoyed a distinct and legitimate advantage over others who were less competent or experienced, the tendency of which was beneficial in many ways. Now, however, so great a change has occurred in this respect that it would be extremely difficult to find in any locality contractors able or willing to tender for a work of any importance without bills of quantities. The present generation of builders has become accustomed to them,

and it may be safely said that many could not give an intelligent offer without them. The normal arrangement, as I have called it, is henceforth inapplicable, and it is generally admitted that it is impossible now, even if it were thought desirable, to return to it. But, and this I wish particularly to emphasise, it by no means necessarily follows that the change in the practice of contractors should affect in the slightest degree their proper relation to proprietors. The change has been introduced primarily to facilitate the work of the contractor; but the proprietor may and ought to share in its advantages. There is evidently something radically wrong if its effect is to load the proprietor with expense and responsibility for which he has no equivalent, and it is the duty of the proprietor's architect,—or, speaking for proprietors generally, I may say it is the duty of this Institute,—to see that we do not drift into the use of a system which must produce such results. This duty is, I think, brought home to us forcibly by the following among other considerations:—First, and most directly, because it is the proprietor who has to pay for the surveyor's work. In some cases this payment is made wholly or in part through the contractor; but in every case it comes out of the proprietor's pocket either directly or indirectly, whether he realises the fact or not. In one shape or another it is a charge which the proprietor must bear, and it is, therefore, clearly the duty of the architect, in the interest of his client, to see that the money is judiciously expended, and that a fair equivalent is obtained. A second reason why architects should now devote special attention to this subject arises out of the circumstance that in times past they have too much neglected it. They have failed to control the development of the system, which, as it exists, is eminently unsatisfactory—especially for proprietors—although regarded by our profession with a complacency or indifference which seems to me, I confess, astonishing. A third reason for their more active interference is, that they may control the further development of their system, and by their united action counteract tendencies which are mischievous; confine the measurer to his legitimate province, and fully utilise his work for the benefit of the proprietor, who pays for his services. Of course, as we shall afterwards see, such a course is not incompatible with due consideration for the interests of the contractor. He is, and the quantity-surveyor ought to be, directly under the control of the architect, who is no more likely to act unjustly to the one than to the other.

Before suggesting some changes which I think would be advantageous, it will be necessary to refer at some length to the existing systems in different parts of the country, and to examine critically the special features of each which bear upon our subject. I have, therefore, arranged my remarks under the three following heads:—Firstly, the actual state of matters; secondly, a critical examination of the prevailing systems; thirdly, proposed changes.

I.—The first of these need not detain us long. You are all familiar with the modes of measuring and contracting in some localities, and many of you have had experience in all parts of the country, from Land's End to John O'Groat's. I must, however, for future reference, state succinctly the distinctive characteristics of the systems now generally recognised. First, and by far the most extensively practised, is that to which you are accustomed here in London. In your practice the bills of quantities, or the "schedules,"—as we call them in the North, and I think the term is more convenient,—after they have been issued, are practically ignored by the architect. They are, whether prepared at the instance of the contractor or under the direction of the architect, regarded simply as aids to the contractor in arriving at an intelligent idea of the cost of the works, and it is the exception when they are still further utilised as guides in fixing the cost of additions and deductions. Formerly,

and not many years ago, it was usual for the contractors to choose the surveyor, and in works of considerable magnitude a second surveyor was employed by the proprietor as a check upon the other. This cumbrous system is still largely adhered to, but it is rapidly losing favour, and the employment of a single surveyor is becoming more usual. Many architects acting as the proprietors' agents, select surveyors in whom they have confidence, whose bills of quantities are generally accepted by contractors as a safe guide.

With slight modifications, which for our present purpose it is immaterial to mention, the London system is followed throughout England and Ireland; but generally the interference of the architect is carried a step further in the provinces; he does not select a surveyor to take out the quantities, but he takes them out himself, thereby incurring serious responsibilities over and above those which his position as an architect necessarily entails; in fact, he becomes responsible both to the proprietor and the contractor—an anomalous and dangerous position. Both in the London and the English provincial practice the surveyor is paid by the contractor, unless there is an express agreement to the contrary.

The Edinburgh system resembles that of England in many respects, the principal differences being these:—Contractors never have anything to do with the selection of the surveyor or measurer, as he is called, who is always employed by the architect; the measurer is paid by the proprietor, and the schedule is referred to in the contract. It is lodged with the architect, with the various items cashed and summed up, and the rates contained in it regulate the cost of additions or omissions which may be ordered in the course of the work. It also is a useful guide to the architect in certifying for instalments. A somewhat similar arrangement is sometimes made in England and Ireland, but in these cases the priced schedule is generally lodged under seal, and even with this modification the practice is no by means common. There are some other shades of difference in provincial practice, but no other system is sufficiently distinctive to merit notice, except that which prevails in Glasgow and the West of Scotland. In Glasgow the schedules have superseded the specification altogether, and it may almost be said that a specification is never referred to in the contract at all. The architect selects the measurer, who, with the aid of the drawings and specification, or such substitute for that as he may get, prepares a detailed schedule of quantities. Copies of this are issued by the architect to selected tradesmen, who are invited to tender by a certain day. These schedules are returned to the architect with rates filled in at each quantity, the amount extended, and the total summed up at the end. A letter accompanies, or more generally is attached to, the schedule, in which the builder offers to execute the work in accordance with the drawings, and "to the extent of the schedule" for the sum brought out by the addition of the extended prices, it being further provided that the whole of the work shall be measured after it is finished, and whether it turns out to be more or less than estimated the cost shall be determined by the rates contained in the schedule; or, where these do not exactly apply, by others strictly in proportion to them. Having considered the various offers, the architect writes on behalf of the proprietor accepting the one which is preferred, and that completes the transaction; in nine cases out of ten there is no more formal contract. When the work is in progress, and when it is finished, the measurer measures it, and prepares a final measurement, applying the schedule rates to the various items, and so bring out the total sum to which the contractor is entitled. This document is examined by the architect, and if he is satisfied that it is compiled in accordance with the estimate, he signs it as a final certificate. Half of the cost of the original schedule and subsequent measurement is deducted from the contractor's accounts, and the proprietor

\* By Mr. John Honeyman. Read before the Royal Institute of British Architects on 19th ult.



pays the full amount—that is, ostensibly the half, but in reality the whole. In the east and north of Scotland the Edinburgh system is more or less closely followed, while in the west the Glasgow system prevails; the principal difference in the smaller towns being that in most cases the architects prepare the schedule themselves instead of employing measurers.

From the foregoing brief account of the existing state of matters, it will be observed that, leaving out of account the new comparatively rare cases in which no quantities are supplied, there are three distinct modes of estimating in common use, in each of which the schedule or bill of quantities occupies a different relation to the contract. In the first the actual contract is independent of it, and its only use is to enable men to form a correct estimate of the sum, for which they may prudently contract. In the second the schedule is supplementary to the contract; it is a sort of appendix regulating the modification of the contract in certain contingencies, and also supplying the architect with information which is very useful to him during the progress of the work. In the third the schedule is the contract to all intents and purposes. Now, as these three modes of estimating have been in use for many years in the largest centres of population, we may reasonably expect by careful consideration of their working to obtain some useful lessons, and this none the less although we may be compelled to regard the existing state of matters as upon the whole unsatisfactory—the existing diversity itself, indeed, is unsatisfactory; but passing from this I shall now take up the second part of my subject.

II.—Let us now examine the distinctive characteristics of the three systems just described. First, then, let us criticise the London system, with its modifications as practised generally throughout England and Ireland. Not many years ago, before it was customary to supply quantities, the London mode of procedure was theoretically right, though somewhat inconvenient for contractors; the architect showed and described exactly what was wanted, and left the contractor to find out by any means he thought proper what the work would cost. The issuing of the quantities by the proprietor or his agents, however, makes a fundamental difference. One good feature remains, namely, this—that if no changes are made after the contract is entered into, the proprietor knows exactly before the work is commenced what he will have to pay for it. This feature, however, is not peculiar to the system. Before it became customary to supply quantities, contracts were equally definite, and it would be rash to conclude that they were less favourable for the proprietor; on the contrary, the customary allowance for contingencies has now probably been increased, and in most cases the definiteness is only obtained at an extravagant cost; and I say so, although I may by no means regard it as a thing of little consequence. Now, I fear you will consider me to be extravagant when I declare—as I am constrained to do—that I have failed to discover anything else about the London system and peculiar to it which merits commendation. Nor is this unsatisfactory state of matters to be wondered at, because you have made the radical mistake of adhering nominally to a principle which practically you ignore, while you have gradually introduced a practice which, if followed to its legitimate issues, is antagonistic to it; and you have thus insensibly drifted into a false position. Hence naturally the confusion as to the relative responsibilities of parties, and the inconsistencies and contradictions of legal opinion on the subject. The root of the evil—and it has many branches—seems to be the illogical, and, I think, illegal, repudiation of the responsibilities necessarily associated with the act of supplying quantities. It is clear that logically and in equity the party estimating, not having any voice in the selection of a surveyor, and having no means of testing the accuracy of the documents given to him for his guidance by the pro-

prietor through his agent the architect, ought to have recourse against the proprietor if he can prove that he has been either unintentionally or deliberately misled. This you deny, and this denial leads to many objectionable consequences. Traditional usages and prejudices bind you to the old theory that it is the contractor's look-out to see that the quantities are accurate, although you know perfectly well that in ordinary circumstances it would be absurd to expect him to do anything of the kind, and that, in point of fact, he takes the accuracy of the quantities for granted, either because he has faith in you or faith in the surveyor, or perhaps because he has faith in the chapter of accidents, and cannot have a chance of contracting unless he accepts what you give him for his guidance. As a last resort you take refuge in this expedient: you declare that you are not, or that you are not to be held to be, responsible; you roll the responsibility over upon the surveyor (whether appointed with or without the concurrence of the contractor), and tell the contractor to pursue him if he has any cause. Now, it is quite right that the surveyor should be responsible for the accuracy of his work, *but not to the contractor*; for observe, the necessary result of such an arrangement is that the preparation of the bills of quantities and all responsibility connected therewith are virtually handed over absolutely to men whose interests are, if not antagonistic to, at least entirely different from those of your client. The contractor has a twofold interest: to please you, so as to retain your good-will; and to make a profit. The surveyor, if you make him entirely the servant of the contractor, has also a twofold interest: to please the contractor, which he can best accomplish by assisting him to make profit; and to take care that he himself incurs no risk from the responsibility which you throw upon him. The interests of the proprietor are obviously a matter of indifference to both. As a matter of fact, both contractors and surveyors of the better class do respect the interests of the proprietor, but having regard merely to the actual relation of parties, there is no reason whatever why they should; and it is needless to say that contractors and surveyors are *not* all of one class. I cannot understand how you reconcile such an arrangement with a due regard for the interests of your clients. It appears to me that your interference with the contractor has either gone too far or not far enough. In the old-fashioned system of estimating, the experience of offerers came in to play as a safeguard against excessive cost; but, having departed from this, abolished competition as a check on the accuracy of quantities, and made the amount of the offers to turn on the mere variety of rates, you take totally different ground, and ought to be prepared for a change of aspect. In the altered circumstances one or other of two things seems to be indispensable—either the absolute accuracy of the bills of quantities must be guaranteed, or some new arrangement must be adopted by which the interests of the proprietor, as well as of the contractor, shall be secured, in spite of inaccuracy in the bills of quantities. Now, the first of these alternatives is hardly practicable, and, as far as I am aware, you have made no attempt to face the second. It is probable, indeed natural, that the London system, and the Edinburgh system, which is not essentially different, should, upon the whole, work smoothly and satisfactorily. It throws no undue burden upon the architect; the contractor and surveyor have, as we have just seen, good reason to be satisfied with it; while the proprietor, however adversely affected, knows nothing whatever about it, and is content to pay what his architect certifies to be justly due. The absence of friction in the working of such a system is obviously no indication of its harmonious adjustment, and the helplessness of proprietors and their complete dependence upon us for protection ought to appeal very strongly to our sense of duty, and encourage us to grapple with the difficulties of the situation.

I must not pursue the subject further under this head; but this is of the less consequence, as I shall have occasion to refer to some other defects and anomalies when treating of the Edinburgh system, which is affected by the same vicious principle of undefined or empirical responsibility.

The Edinburgh system, in so far as it provides for the modification of the contract in accordance with the rates in the schedule, differs from the English system as generally practised, but it affords little (if any) further protection to the proprietor. The question of responsibility is more boldly dealt with, but not more successfully. The measurer expressly states in the schedule that its accuracy is not guaranteed—that is, of course, either by the measurer or the proprietor—and contractors are therefore requested to satisfy themselves on that point, which is simply absurd. Practically, the measurers take care to measure the work fully, and the contractor adds a percentage for contingencies, and takes his chance of being rightly guided to the cost. Now you will observe that to the extent of this fulness and this contingency percentage, the proprietor is a loser; he gets no value for either. But these are small matters; there is no effective check on the omission of portions of work which, although embraced in the schedule, may have been inadvertently left out of the specification, or of works put into the schedule by mistake. Suppose, for example, the measurer inadvertently doubles the number of cubic feet in the stone foundations, the contractor—executing the work to the full extent and meaning of the drawings—would pocket the value of the double quantity of foundations without anybody but himself being a hit the wiser. Here, again, the unfortunate proprietor alone would be the loser, and his case is indeed a hard one; first he pays the measurer, then he pays for every thing that is done, and he also pays for everything mentioned in the schedule, even if it has not been done—that is, of course, assuming that no alteration has been made on the plans and specifications by order of the architect.

It may be said, indeed, that there is every likelihood that errors to the prejudice of the proprietor may be balanced by others in his favour; but granting this—granting that the surveyor is as likely to make a mistake the one way as the other—observe where this doctrine of compensatory errors must lead you. There is a chance of errors being made which shall balance each other, but on the other hand there is hardly any chance that two such errors as I have noted (and it is not an imaginary illustration) shall be made in one bill of quantities. It would say very little for the surveyor if they did; but even the assumption that they may does not relieve you from the difficulty, because while it is quite true that they may balance each other, there is at least an equal chance that they are both in favour of the contractor, or both in favour of the proprietor. If, however, you admit, as doubtless you will, that a surveyor only makes such serious mistakes as this occasionally, then it necessarily follows that while his first mistake seriously injures one contractor, his second may as materially benefit another; but the thought that this is likely to be the case can hardly be expected to afford either compensation or comfort to the man who has suffered. A different system is required to protect the contractor in the one case and the proprietor in the other from serious wrong; it is a most unscientific procedure to relegate such a function to chance.

But let me illustrate another set of difficulties which the system cannot satisfactorily deal with by an actual case. In a town, which I need not name, two hanking companies resolved to erect new offices. They employed the same architect, and the sites were contiguous; but in everything connected with the planning and contracting for the buildings they acted independently, so much so, indeed, that they employed different measurers. It was arranged that the wall separating the two offices should be a mutual or party-wall,



but inasmuch as complete plans had to be made for each bank, the party-wall, of course, had to be shown on each set, and being so shown it was in due course measured by both measurers. Now it so happened that the same contractor got the contracts for both buildings, and it never seems to have occurred to anyone till the work was done that by his contracts he had exactly twice as much for the party-wall as he ought to have had—he had erected both buildings according to the plans and specifications, but he had erected only one party-wall, and was entitled to payment for two. The contractor refused to submit to a reduction, on the ground that he had offered to do the work for a lump sum. He also pleaded that for some other portions of the work the quantities stated in the schedule were insufficient. Finally, it was agreed that the whole work should be remeasured in accordance with the Glasgow system, under which no such difficulty could have arisen. In this case it will be observed that the final arrangement was facilitated by the architect having in his hands the priced schedules according to the Edinburgh custom.

(To be continued.)

#### TECHNICAL EDUCATION— WORKMEN'S FAILINGS AND WANTS.

THE Coachmakers' Company—one of the modern representatives of the old City Guilds of London—have awarded a number of prizes for freehand and mechanical drawings, for carriages, or parts of carriages, to the scale of one inch to the foot. There were thirty-six competitors in all, with eighty-six drawings, thus classified:—Forty-six freehand or mechanical drawings, and twenty-two carriage drawings. Some of the competitors sent both freehand drawings and drawings of carriages to scale. The prizes consisted of silver medals, money, and certificates of merit. The prize drawings have been exhibited in the hall of the Mansion House, London, by the permission of the Lord Mayor, and in addition there was an interesting collection of books, engravings, and carvings connected with the trade. It is noteworthy that the present master of the company, Mr. Frederick Chancellor, is a practising architect. In former competitions, if we remember aright, one or more Irish coachmakers sent in drawings, and we believe a Cork man obtained a prize. This last competition appears to have been confined to English competitors—at least none but Englishmen appear among the list that we have seen.

We have no City Guilds of trade in Dublin, these old minor Corporations having been abolished by the Irish Municipal Reform Act; but we have modern trade societies, which might do something for their respective crafts by co-operation. We have more than once urged and appealed to these Dublin bodies to organise a movement in favour of technical education in the interests of the younger members of their orders. The building trades alone could jointly support an institution comprising a reading-room, library, drawing classes, &c., a very small sum from each of the members, or a moderate sum voted by each of the trade bodies would be sufficient to support such an institution. If such were established there would soon come practical support from outsiders in the shape of donations of books, drawing instruments, prizes, &c., and some of our engineers and architects would doubtless render assistance. We cannot well understand how it is that our Dublin artisans are so indifferent to their interests—particularly the younger members. A Mechanics' Institute exists in this city, and has existed for upwards of forty years, but we regret to say that it is laggard, and it is not keeping pace with the educational spirit and wants of the times. A reading-room and lending library is good in its way, but the classes as a whole are deficient, and at present there are no drawing classes. There is a very good lecture hall, but it has of late become more

of a theatre or concert hall than a place of instruction. Ordinary lectures do not "draw," and have, perhaps, to a great extent gone out of fashion, because several men have assumed the role of lecturer who were unfitted and knew not the subjects they attempted to explain. A good scientific lecture, or one on some branch of the fine or industrial arts would find listeners still in Dublin, if properly handled and suited to the class for whom it is intended, or to the growing wants of respective trades. There are facilities for young artisans at the classes of the Metropolitan School of Art, Kildare-street, but even these do not seem to be availed of by our young workmen. We would not debar the working classes from enjoying any legitimate amount of amusement or recreation, but we are sorry to write that far too much valuable time is wasted and money spent in gin palaces and beer shops. Refreshment is one thing, but habitual drinking is another. The practice is demoralising and ruinous, and the sights and scenes that are to be witnessed in our whiskey shops on Saturday, Sunday, and Monday evenings, aye, and indeed other evenings, is degrading and humiliating to us as a people. The Sunday Early Closing Act has, perhaps, in our city worked some good, but a large amount of drink is still consumed in the city and suburbs on Sundays. The "roaring trade," however, is in full swing on Saturday evenings, and thousands of pounds of the hard earnings of the working classes are spent, utterly thrown away, for what is, when taken in excess, neither good for body, mind, or soul. We are free to admit that Dublin workmen are not alone chargeable with drinking habits, for in London, and in the large cities and towns of England and Scotland vast sums are expended by artisans and labourers in excessive drinking—on drinks, too, of the most poisonous kind, wilfully and foully adulterated and doctored for immediate consumption.

Men may not be made sober by act of Parliament, but the less temptation the less danger. Education, and particularly technical education, will make men more thoughtful; and we would that we could impress this fact more strongly on the minds of our workmen than ever, that they might become conscious of their position and their wants and needs, in view of the future. We have in Dublin, and throughout the country, workmen who are not inferior in particular crafts to any elsewhere in Great Britain, but we have not the manufactories and diversified workshops and very numerous branches of trade to be found in the sister kingdom. What limited trades and arts we do possess in our midst it is necessary that we should maintain, but that we may retain them it is requisite that our workmen should be educated up to the standard of the time. Each decade witnesses various changes and improvements in all the arts, and the highly-skilled workman in a particular trade in Dublin thirty years since would, perhaps, to-day range only a third-rate hand in comparison with the best men in his trade at the present time. Irish artisans need to keep pace with French and English artisans in all branches of trade that still exist in our midst. It is only by a fair elementary and a practical or technical education that our workmen in general can hold their own. Brewing and distilling in Dublin absorb a very large number of hands in all its departments; but pleased as we are to see our working classes employed, we would rather see Dublin absorbing a like number of men in other trades. The building trades, too, afford employment to a large number of hands, and firms connected with the liquor interest afford, we are aware, employment to a good many building workmen throughout the year. While admitting this fact for whatever it may be worth, it at the same time affords no valid argument for men foolishly drinking away their wages, wasting their days, impoverishing their families, destroying their health, and hurrying themselves headlong into the workhouses or early graves. Our workmen are not called upon,

in return for any favours received, to shout on success to the liquor traffic, neither would we desire to see them demeaning themselves by publicly cursing the sellers of drink or injuring their property by overt acts. Public-houses and inns were originally established for offering rest and refreshment for travellers or visitors; as such they are useful and necessary still, consistent with the wants of the district in which they are situated.

Have we digressed, or are we digressing? Some of our readers may think we are, but we hold that the question of strong drink and drinking to excess has a bearing upon our subject. If our artisans as a whole would elevate themselves, they must do it by improving their minds, and the improvement of the mind leads to the improvement of the body, and *pari passu* to improvement of the work of the hands. There are other bad habits as well as habitual drinking, and they exist apart from drinking habits; but it is, nevertheless, a fact that constant drinking and frequenting public-houses, for love of drink alone, is a terrible evil, and that it generates a number of other vices. A confirmed drunkard is a poor wretch: indeed he is a miserable one, whether rich or poor. No artisan who continued a drunkard, or who was excessively fond of strong drink, ever rose to distinction. It is the steady, sober, and skilful artisan who mostly, if not always, becomes prosperous, wealthy, and honoured.

#### ST. PATRICK'S CATHEDRAL, NEW YORK.

THE ceremony of dedication took place on the 25th ult. It is over twenty years since the corner-stone of the edifice was laid by the late Archbishop Hughes. The style is that known as the Decorated Gothic, prevalent in Europe in the thirteenth century. The ground plan is in the form of a Latin cross. The dimensions are:—Interior length, 306 ft.; breadth of nave and choir, 96 ft., exclusive of chapels, and with them, 120 ft.; length of transept, 140 ft.; width of centre aisle, 48 ft.; height, 108 ft.; width of side aisles, 24 ft.; height of same, 54 ft.

The Fifth-avenue front consists of central gable, with towers and spires on each side. The gable will be 156 ft. in height, and the towers and spires each 330 ft. The walls are 12 ft. 6 in. thick, and are throughout cased with marble. The design contemplates the statues of the twelve Apostles to be placed in the coves of the grand portal, which has a doorway of 51 ft. in height and 30 ft. in width. The transept fronts are divided into a central aisle 48 ft. wide and 170 ft. high. Over each door the great transept windows fill the whole space up to the springing of the gables. These two windows are 55 ft. high by 28 ft. in width, and are divided by clustered mullions into six bays, and the arches are filled with tracery. The windows are all glazed with two thicknesses of sashes and glass set 2 in. apart, in order to secure evenness of temperature and prevent draughts. The columns dividing the centre aisles are of white marble 35 ft. in height, with a diameter of 5 ft.

The high altar is 40 ft. to the top of the centre pinnacle over tabernacle. The table, tabernacle, and stylobate, are of the purest marble, inlaid with alabaster and semi-precious stones. The table is divided into niches and panels on face, containing statues and bas-reliefs. The total cost will be about £600,000.

#### CARLISLE BRIDGE.

TEMPORARY road and footways have been opened east and west of the old structure, which will accommodate all traffic for about one year, at the end of which time it is hoped the ceremony of opening the finished bridge will take place, and its second christening as "The O'Connell Bridge" be performed.



## HOME AND FOREIGN NOTES.

**THE PEN FOR A CONSTANT WRITER.**—The "Waverley" nib we recommend. You can get a sample box for 6d. at any stationer's.

**THE CITY ARCHITECT.**—The ballot for this new official took place on Monday last, at the City Hall. Mr. Daniel J. Freeman received 27 votes, and was declared elected to fill the post for one year, at a salary of £500. The former officer (Mr. J. S. Butler) was paid by fees.

The municipality of Paris has decided to give commissions for the execution of 360 statues of the great and notable men of Paris, in order to replace those destroyed in the Hotel de Ville during the Commune. The cost is estimated at 1,800,000 francs. These are to embellish the new Hotel de Ville.

**THE SOCIAL SCIENCE CONGRESS.**—This year's Social Science Congress will be held in Manchester. A resolution passed at a late committee meeting, fixing the guarantee fund for meeting the local expenses of the congress at £3,000 was reconsidered, and it was resolved to fix the amount of the fund at £2,000.

**FORTHCOMING FOREIGN EXHIBITIONS.**—The works for the Brussels Exhibition of 1880 are progressing rapidly. About 300 men are employed, and 200 carts are constantly bringing materials. It is announced that the time for receiving applications for space to exhibit at the Melbourne International Exhibition of 1880 has been postponed to the 31st of October.

**ECCLESIASTICAL ART EXHIBITION.**—During May and June, 1880, it is proposed to hold an exhibition of works of ecclesiastical art in London. The exhibition will be open to British and foreign art. There will be a loan collection of mediæval and modern ecclesiastical art, and a division for architects, artists, and others who exhibit original work, and another for the works of manufacturers.

**TELEPHONY IN DIVING OPERATIONS.**—Mr. Raymond, an engineer in New York, recently read a paper before the Society of Engineers in that city respecting some improvements he had made in using telephones in diving operations. It was found that the diver could talk in the helmet without putting his mouth to the instrument and be heard plainly, so that work and conversation could go on at the same time. The saving of time is stated to be considerable.

**ROMAN ANTIQUITIES.**—A Continental contemporary states that the Villa of Marioweller, near Dueren, has turned out to be a mine of Roman ruins. Enough of the villa has been bared to allow the apartments of the bath to be marked off with precision—viz., the tepidarium, the caldarium, and the frigidarium. Part of the stove and hot air clay-pipe has also been excavated. An inscription has been found, not yet definitely deciphered, but seems to bear the date of the eleventh year of the reign of Augustus—about 19 B.C.

**A CURIOUS EPITAPH.**—The following curious epitaph is to be found on a tombstone, in a good state of preservation, in Kilraughts burying-ground, near Ballymoney:—"I was born in the year 1721; I drew my last breath 1797. The remains of my grand-uncle Peter, my mother, and also me, lie here interred in one grave. By this you may plainly see, Death closed our eyes. From our tongues no jarring notes do resound. With spiritual bodies we'll rise, when the last trumpet will sound.—PETER PATTERSON."

**AN INTERESTING OLD ENGINE.**—Heslop's winding and pumping engine, patented in 1790, is now to be seen at the Patent Museum, South Kensington. This engine was erected at Kells Pit for raising coals about 1795, afterwards removed to Castlerigg Pit, and, in 1837, to Wreab Pit, all near Whitehaven. At the latter place it continued to raise coals, also to pump by means of a cast-iron beam placed above the main beam, until the summer of 1878, when it was removed to the museum. By the above arrangement of two cylinders Heslop obtained advantages closely approaching those of the separate condenser, and effected a signal superiority over the atmospheric engine of Newcomen, even as it then existed, with all the structural improvements introduced by Smeaton. No other engine of this type now remains in existence, it is believed, and it is therefore appropriate that this one, the last that worked, should be preserved.

**THE STRENGTH OF MORTAR.**—The following is worth knowing, mentioned in the *Ann des Ponts et Chauss.* In building the Pont de Claix, some experimental blocks were joined by mortar, which were allowed to harden for three years, when the mortar was broken by an average load of 10 0125 kilogrammes per square centimetre [142 228 lbs.

per square inch.] This experiment shows the adhesion of mortar to stone is only about one-third as great as the cohesion of the mortar itself. This result is noteworthy, as the adhesion is the true measure of the resistance of masonry. Further experiments of a similar kind are desirable in order to establish formal conclusions. The adhesion of good mortar to brick is also noteworthy, particularly in old well-built walls and arched passages, &c. We have often witnessed well made and very hard bricks breaking in two under pick and hammer ere the mortar bond would give way. In fact, the tenacity of the mortar was so great that cold steel chisels had to be used to free mortar from the bricks.

**CONSCIENCE MONEY.**—At the last meeting of the Bridgnorth Town Council, the medical officer of health presented his report for the first quarter of this year, observing that he "had no report to make, and no sanitary defects to bring under their notice. The only complaint he had was that he was receiving too much for the work he did. He did not believe it was right for him to take public money that he did not earn." He, therefore, proposed, amidst loud applause on the part of the Town Council, that his salary should be reduced from £30 to £20 per annum. This application seemed to us so extraordinary that we have been at some little pains to ascertain whether the death-rate of the borough is in fact so exceptionally low that here is such very little occasion for the services of an officer of health. We find that, during the particular quarter under consideration the death-roll in the sub-district, which, for all practical purposes, may be taken to correspond with the borough, was equal to an annual rate of 32.2 per 1,000! As might fairly be argued that last quarter was an unusually fatal one, we have taken out the figures for 1878, and find that the death-rate for the whole year was 24.9. And yet the officer seems to be content to consider that everything is as it ought to be, and that there are no sanitary defects to be brought under the notice of the authority!

**SIR HENRY BESSEMER.**—Mr. Henry Bessemer, of Denmark-hill, Camberwell, on whom her Majesty has been graciously pleased to confer the honour of knighthood, in recognition of his services in the manufacture of malleable iron and steel, and in numerous other inventions, is a son of the late Mr. Anthony Bessemer, of Old Broad-street, London, and subsequently of Charlton, Hertfordshire, where he was born on the 19th of January, 1813. He was, to a very great extent, self-taught, and at 20 years of age exhibited a design at the Royal Academy, then located at Somerset House. He first attracted the attention of Lord Althorp, then Chancellor of the Exchequer, by an ingenious contrivance which he made for preventing frauds which were carried on upon a large scale by the transference of stamps from old documents to new ones; but though the saving to the public purse was estimated at nearly £400,000 a-year, he never received any remuneration for his ingenuity. In 1836 he read before the British Association, at Cheltenham, his first paper on the manufacture of malleable iron and steel, which has given him a world-wide name—literally so, for the Americans have christened after him a thriving new town on the Cincinnati Railway, and "Bessemer metal" has become current in most of the languages of civilised communities. Mr. Bessemer's great inventions have been recognised both at home and abroad, for the Emperor of Austria conferred on him the rank of a Knight Commander of the Order of Francis Joseph, and the late Emperor of the French offered to his acceptance the Grand Cross of the Legion of Honour, in consequence of a report from the jurors of the Universal Exhibition of 1867 that his invention was of exceptional merit. He has also been the recipient of the Albert Gold Medal, presented to him by the hand of the Prince of Wales. It is stated by Blanch, in his "History of Camberwell," that in the course of his various experiments Mr. Bessemer has taken out more than 100 patents, and has paid to the Crown as much as £10,000 for stamps alone.

## TO CORRESPONDENTS.

**ARCHITECTURAL REPRESENTATION.**—Several letters re the "Irish Institute" are to hand—some intended for publication, and others tendering information and advice. If we were the "know-nothings" that some would wish to write us down, to the shame of their practice, profession, and country, it might be truly consoling to such persons. We, perhaps, know too much; and we may show some people very shortly that we know a great deal more than they ever were aware of.

C. W. C.—The notes are now too stale.

**A CITIZEN.**—The Corporation are interesting themselves in the matter; but among their own members there are men who are at present dilly, as they have for years back been, constantly evading the acts passed for putting down the evil.

**AN ARCHITECT** (Great Brunswick-street).—The drawings of your brother professional are intended for a journal in the

slister kingdom. "There is nothing worth helping in this country." We wonder he accepts a commission from an Irish client "Dublin stinks," or rather the Liffey does. What very Irish architects we have in our midst!

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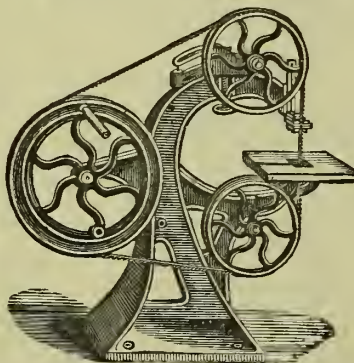
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CHURCH OF OUR LADY OF THE ASSUMPTION,  
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THE IRISH BUILDER.

VOL. XXI.—No. 469.

PROFESSIONAL ARCHITECTURAL  
DIS-ORGANISATION.

**W**E lately gave utterance to some very unpalatable truths, which though undeniably true in substance and fact, yet, nevertheless,

provoked the wrath of some professional gentlemen, who did not want their culpable shortcomings and the wretched condition of their organisation to be known to the country, and particularly to their brethren across the channel. Although we are always ready to hold ourselves amenable to an educated and sensible public or professional opinion, we are, nevertheless, conscious that we honestly performed our duty in dispelling a chronic illusion, for indeed the illusion had become chronic from its long continuance.

If any profession, architectural or otherwise, is to be raised and maintained in an honourable position, it must be done by the talents, character, and industry of its own members. A government is strengthened by the unity of its supporters, and the same rule holds good in respect to a profession or a society. Respect will only come from outsiders when the members of a profession respect themselves, and prove themselves worthy of the confidence they seek. Our Irish architects,—or, to speak more locally, our Dublin architects,—as a whole, have for a considerable time back been utterly oblivious of their professional character and reputation in a collective sense, though individually we doubt not most of them have been fully alive to their personal interests. It is a sad state of affairs to find some of them loudly complaining, and not without cause, of the unhandsome behaviour of others who will not “live and let live,” but who consider it a good stroke of business to circumvent talented young and struggling professional

brothers. These and kindred practices would, in the opinion of some, be better untold, but we think otherwise. Some diseases call for very prompt and serious treatment, and there are tumours and wounds that need most skilful treatment if a human life is to be saved. An incipient cancer may be cut out of the body and a skull safely trepanned; and operations analogous to these are often needed for preserving the lives of other bodies and institutions. Galvanic shocks are of no avail to debilitated constitutions, and where consumption has taken deep root human remedies cannot afford much relief. An institution, however, unlike a human body, can, if not thoroughly diseased, be saved by the infusion of fresh brain and blood. In some instances the ruin is so great that a re-constitution is the most advisable course to adopt. We have known more than one successful instance of re-formed bodies, but the re-constitution was only made perfect and healthy by eliminating the original causes that contributed to certain failure. Men as well as measures must be occasionally sacrificed if they stand in the way of public advancement, and if their action is inimical to the general weal. He is a foe to the best interests of his order who usurps a position for which he is unfitted, or clings to an office, honorary or otherwise, wherein he is an incumbrance. He may be a man of talent, he may possess a good private character, but his outside or other connections and associations may so influence his action as to render him useless to his professional brethren, and a continued wet blanket in council. Such men as we have indicated are often found in connection with public institutions, in fact they exist in twos and threes in some bodies and not singly, and they are the utter ruin of professional organisations.

All societies founded for practical objects should be thoroughly practical in their aims. Scientific and art bodies are not intended for mutual admiration societies, where individuals may meet when it pleases them. A scientific body is for the representation and advancement of scientific interests, and an art institution for the representation of art. An architectural society, therefore, can only be founded for the representation of architectural interests, and the conservation of the professional rights of architects. Architecture at the same time is an art, and a noble one if rightly understood, and they are unworthy members of their honourable calling who would play fast and loose with the dearest interests of their professional brethren by wanton indolence and neglect of duties.

In respect to Dublin, what is wanted is a properly-constituted Institute of Architects, a council fairly elected by the votes of the body, and not a self-elected few, repeating yearly that miserable make-believe election endorsed by no representative meeting. At present it is certainly not honest for the half dozen of men who have constituted themselves the council of the so-called “Institute of Irish Architects” to speak in the name of the Architects of Ireland. Let the council or its spokesmen unbosom themselves at once; let the truth, the whole truth, and nothing short of the truth be told. It is a folly to think that the few members who now assume the right of speaking on behalf of the architectural profession can exert any influence on the Irish executive, the municipal bodies, or

the public at large. A general meeting must be summoned, and the Institute re-organised from base to summit before any practical good can be accomplished for the interests of the profession. When the Institute becomes a truly representative one by an accession of members, and by the election of a good working council who will meet and work, then, and then only, will the voice of the Institute through its council be listened to with respect. A good council secures and maintains good officers, and an efficient secretary is part of the life-blood, and a very essential part, too, of every society, architectural and otherwise. Paying members and a paid secretary are necessary to the support of all institutions, and these are the very requisites that the Irish Institute lacked. Resolutions and good intentions are so much empty words when no work follows, and we are heartily tired of seeing yearly repetitions of the same in this city.

It is easy to point out the work required to be done, but we prefer to see the men in harness who are willing to do it. It is now years since we proclaimed in these pages the want of a Dublin Building Act, and the evils its absence led to. After persistent hammering at the subject the Institute of a few years since took some half-hearted steps, and the Corporation evidenced a desire to lend a helping hand, but the question still remains in abeyance, though it is trotted out on certain occasions as a reminder that some folks are still thinking of it, and dubious whether they should follow the question up or let it alone. The Jerry building abuse is waxing stronger in this city and its suburbs, but neither the Corporation nor the Council of the Irish Institute deign it worth their while to touch it or denounce it in strong terms; in fact, some of our architects are directly, and others indirectly, assisting to keep alive the abuse. Now, we have, in and out of season, denounced bad builders and bad building, but it would be manifestly unjust on our part to screen the bad practices of architects, for unprincipled architects lead to the growth of unprincipled builders. Builders' houses are of two or three classes, and no difficulty need be experienced in estimating their character. They may be classified as good, middling, and very bad, and those of the second class are not well built houses. Our architects' houses in our city and suburbs, we are sorry to write, are not all good houses, owing to the conditions under which they are built. Several of them are designed by men calling themselves architects, who have no right to the title, and the supervision they receive during their erection is of the most perfunctory kind. Matters are often made too easy for the builder, and the client or unfortunate future owner or tenant pays the penalty. Architects, too, who have a character and a reputation to maintain, have betimes forgotten their duty, and have run risks for a temporary advantage. Time, however, brings sinners to book, or otherwise proves that honesty in the long run is the best policy. The proverb that tells of the man who killed the goose for the sake of the golden eggs affords an apt illustration. In this city we have had architects, and we have them still in our midst, who are doing their very best to kill their profession, little thinking, perhaps, that they were destroying at the same time their future practice, and that of their brethren.



Individual effort can do but little, even when well directed, to uphold the honour and dignity of a profession, but united effort can do much. Without co-operation and brotherly spirit the interests of the architectural profession in this country must go to utter wreck and ruin; and it behoves our architects to reconsider their present position, and the aspects and prospects of their calling.

If the elder brethren will not move, will not be shamed into action, then by all means let the younger members of the profession combine at once for an earnest effort. Their practice and prospects are at stake, and it is only by lifting up the profession to its proper position they can succeed in elevating themselves as respectable architects and citizens.

### ABATTOIRS.

By JOHN S. SLOANE, C.E., ARCHITECT.

NOTWITHSTANDING the cry of depression in trade, bad harvests, and inability to pay rents, coupled with the enormous prices of certain articles of consumption, it is refreshing to find even one town in Ireland taking a step in a progressive direction.

For some time past the Corporation of Drogheda have been showing symptoms of a movement to get rid of the old slaughter-houses and to build abattoirs in some favourable situation, and of the most approved construction. A few words descriptive of some of those hitherto erected will not be amiss, especially as there is nothing of the kind as yet in Ireland.

The best, indeed the only, meat or other markets deserving of the name are in Cork; Dublin is but now commencing the erection of what will probably be a decent establishment for the south city, and although the author exhibited plans for markets which were most favourably noticed by the public Press in 1853,\* his efforts met with the usual *gratifying* results. There does not appear to be any move making as to abattoirs, or—not to put too fine a point on it—slaughter-houses. An attempt was made by a few English capitalists in 1859 to promote a company to establish these most essential works in Ireland; the author was appointed architect, and, with the secretary, waited on several gentlemen in Dublin, Cork, Limerick, Sligo, Belfast, and Galway, likely to further the object, which was not only of sanitary but commercial importance; but the effort failed, as many others have done. However, it may, perhaps, come to the turn of the good old town of Drogheda to show an example.

The word abattoir affords a pleasing

name for a not very pleasing act or association of ideas; it means to knock down, to destroy, in fact to slaughter; to batter, from the French *abattre* to knock down, or the Latin *battere*. We Irish have a word connected with others somewhat like it in sound, which means a road; for instance, Stonybatter, meaning stony road; Batter or Booterstown, the stony town or village (probably one of these names will, for a certain reason, attach to the new Carlisle Bridge). As Joyce considers, this "hardening process," as he calls it, occurs in some of the Leinster counties where the Irish word *bothar* [boher] a road, is converted into *batter*. "This word 'batter' is or was well understood in these counties to mean an ancient road."—"Glossary of the Dialect of Forth and Bargo," by Jacob Poole: edited by William Barnes, B.D.) "As for the word *bater*, that in English purpozeeth a lane bearing to an highway, I take it for a meere Irish worde that crept unawares into the English through the daily intercourse of the English and Irish inhabitants." But this is a digression, and we will return to our muttons, or to where our sheep are made muttons.

To the French—that is the Parisian French—we owe the designing of the means of getting rid of a great evil, for it appears to have been a more intrusive annoyance in the continental metropolis than anywhere in these kingdoms. We are accustomed to know that the necessary evil is carried on in by-ways and back lanes, and closes where, from want of proper light, ventilation, or supervision, a protoplasm (as Tyndall would call it) is evolved of all that is deadly in a sanitary point of view; but in Paris the killing of cattle for the purposes of human food was daily a matter to be witnessed with all its unpleasantness in the most public streets. This arose from the fact that the corporation of butchers had from a very early date the privilege of supplying the city with flesh meat and purchasing cattle; and all those purchased at the suburban markets, particularly those of Poissy or Sceaux, were driven through the streets and slaughtered and prepared for sale publicly, all the blood and refuse matters being stored in tubs, much of which went to make the many choice *plats* for which the French cooks were said to be so famous.

Any change from this state of things was most energetically opposed by the butchers, and, being a very powerful and independent body, years passed without a remedy, although the attention of the government had long been directed to the mischief; but in 1810 the Emperor Napoleon published a decree ordering five abattoirs to be erected under the direction and designs of a council of architects, with the assistance of a man who had made his fortune as a master butcher and had retired—M. Kreumer. The design by M. Happe was very large, and was some years in carrying out; it comprehended five abattoirs containing 240 slaughter-houses, the largest being at Villette, where has since been erected the great "Marche aux Bestiaux," or market for live cattle intended for the *abattre*; but it was not before 1818 that the strong hand of the law and the Emperor prevailed to make the Parisian butchers cease to slaughter in their private establishments. The author has visited several on the continent, at Paris and Brussels, &c., and at Holloway in London (or the Copenhagen Fields), Edinburgh, and Glasgow, and secured some sketches and measurements as well as much local information. Mantua was one of those cities that early followed the example of Paris, the authorities thereby endeavouring to relieve in part the otherwise unwholesomeness of the air, from the vapours arising from the lakes and the River Minchio. The abattoirs of Paris yield the city £12,000 per annum.

The old system is still in operation in London, although the abattoirs at Holloway are the best for their size that we have seen; those also erected in Edinburgh in 1851 are excellent; but with a certain strict adherence

to rules, and an ample and constant supply of water, with perfect drainage and skilful supervision, there is no reason why any town should be without its abattoirs. In such as Drogheda, for instance, we would use the sea or river water for flushing the floors, yards, sewers, &c., reserving the fresh water for the purposes of dressing or cleansing the portions of the animals intended for food. The value of these establishments cannot be over-rated; not only do they free a district from the effects of a disgusting and dangerous operation, but they afford opportunities for inspection as to whether the animals are healthy or in a fit state to furnish food for human beings. In addition, all the refuse matter can be brought together, and the parts separated and selected as required for supplying the various trades that are mainly dependent on such places for their supplies for the manufacture of glue, Prussian blue, gelatine, oil, and blood manure; the skins also, under careful handling and superintendence, with the many appliances at hand, bring a much better price. The charges generally agree within a fraction in the different establishments, *i.e.*, from 4s. 9d. to 5s. for cattle, and considerably less for calves, pigs, and sheep.

The following will give a general description of an abattoir, that at Holloway being in our mind as we write. The two large houses are 38 ft. square, with four pairs of balks running parallel with the front, on top of which are iron plates or rails, on which run gantries; to these the carcasses can be attached and moved along as required; a space of 12 ft. in width is reserved at one side of each of the buildings, over which is another arrangement of rails and tackle by which one lot of butchers can be engaged in dressing a beast whilst another lot are engaged in killing; one hundred animals can be hung up in each house; in the roof are large sky-lights facing the north, with louvre of luffer boards for the escape of steam and vapours; in the front and back walls are also luffers to assist ventilation. By these means carcasses cool more quickly in summer, and the meat can be kept twenty-four hours longer than when killed in the ordinary slaughter-houses; all the doors are made to slide, both for economy of space and greater convenience. There is to each house a washing space or yard 20 ft. square, in which is the blood tank, to which it is conveyed by glazed earthenware pipes, and removed from thence in casks. There are coppers for boiling water, slate divisions for hides, with tables and sinks and hooks for hanging paunches, and in fact every convenience requisite. All the walls are faced with white glazed Stourbridge bricks to a height of about 5 ft., so that all blood can be washed off, and water is laid on with stand-pipes and flexible hose in all directions.

Outside the washing space is a pound where the beasts are kept previously to being killed; the pounds at Holloway are rather circumscribed, but are in immediate proximity with the bullock lairs, capable of containing 3,000 bullocks; the dung pit is at a distance from the building, and all refuse must be cleared away each day, all blood removed, and the whole most copiously flushed and cleansed with water. In the smaller slaughter-houses for sheep and pigs the blood is received in tubs; iron rails and hooks are fixed for hanging the sheep, and a larger proportionate space is allowed, along with separate pounds and washing place.

Gwilt, in speaking of the action of the French government in 1811, says:—"The result of this determination has been not only the prevention of all cause of complaint of former inconveniences, but has resulted in a set of buildings bearing a character of grandeur and magnificence proportionate to their destination. It was a worthy exercise of the power of the government; it has obviated the disgraceful sights almost every day witnessed in London—sights tending to deprive the lower classes of humanity, and to render them ferocious, to

\* SANITARY IMPROVEMENT OF DUBLIN.—Mr. John S. Sloane has addressed a letter to the chairman and members of the Sanitary Association, directing attention to a design for markets and abattoirs, lodging-houses, baths, and wash-houses, which was exposed by him in the southern gallery of the Great Exhibition building, in the section partially appropriated to architectural designs, models, &c., and intended to show what might be done to remove the evil effects which must arise from the congregated impurities existing in the numerous lanes, alleys (with their back yards), ill-constructed markets, and slaughter-houses, which at present occupy the space bounded by Great Britain, Henry, Moore, and Denmark streets. He says:—"The large circular market-house, capable, with its gallery, of accommodating 100 victuallers, fishmongers, and greengrocers (or nearly double the number at present in the district), is prominently placed, and would form a striking object. Its roof, as designed of iron and glass, would bear on the outer walls and on a great cast-iron column in the centre; into this column all the rain falling on upwards of 30,000 superficial feet could be directed to flush over the floor, which should be formed of some impervious material, with a quick fall from the centre to sewers placed outside the circumference, having a second floor of perforated cast-iron, through the interstices of which the smaller refuse of the market could fall, and be carried off by the rain, and a regular flushing of water from a central fountain at certain hours during day and night, to be regulated by a lever from a large public clock, with suitable self-acting machinery. The same description of floor to apply to the abattoirs which I have placed on either side of the market house, and which contain a greater area than the congregated slaughter-houses of the north side of the city. The Dublin markets are in every case surrounded by squalid lanes, and filth reigns where cleanliness should be paramount. To obtain the great desideratum must be a work of time and considerable expense; but by a judicious arrangement of new and improved buildings on the old sites, the increased value of property would amply compensate for the outlay.—*The Builder*, August, 1853; and somewhat similar in *Daily Express*, *Freeman's Journal*, *Wardner*, and *Saunders's News-Letter*."



corrupt the mind, to offend the eye, and to injure the public health."

From communications we have had with friends in many parts of Ireland, we have no doubt that Belfast, Portadown, and Lurgan, in the north, with Cork and Limerick in the south, will shortly be "up and doing" in this work, and the rising town of Skibbereen will not be backward in its efforts to promote a sanitary and commercial progress. The hints we have given can of course be only general, so much depends on situation and site; but the buildings can be made picturesque without being either costly or out of keeping with the object in view; plenty of ventilation, a large command of water, and a judicious use of glazed tiles, pipes, and asphaltum floors are the great desiderata.

#### ADVERSARIA HIBERNICA,

##### LITERARY AND TECHNICAL.

PURELY literary men in the seventeenth and eighteenth centuries and previously have written their own memoirs, or told us the stories of their lives and times in diaries and autobiographies. These works were published in many instances long after their deaths. Evelyn's Memoirs and Pepys's Diary are most interesting works, despite the great amount of gossip and personal matters they contain. When a long time elapses between the writing of a work of the above kind and its publication, the world is inclined to look with favour and forgiveness on the egotism of the authors. Old Pepys entered in his Diary many unpalatable though reliable truths, and we dare say he often drew the long bow. Boswell's "Life of Johnson" is an interesting but curious compound, and its author did not forget to say a few things in favour of himself as well as many things in favour of his hero. Boswell was certainly a great toady and parasite, yet men are inclined to forgive him his faults for leaving us so many traits of the character of Johnson. Artists and men of science, too, have left us diaries and materials towards their public and private "Lives." Now a diary may be made a very useful and important work if it be the composition of a professional man. The diary of a great architect, engineer, artist, or medical man, if faithfully kept as a record of practical work done, and of important events in the lifetime of the author, may in a generation or two prove to be a most valuable work. A distinguished man in his profession is often brought into contact with other distinguished men, and his opinions of the works of his professional friends and contemporaries may have in lapse of time a very high value. Very few diaries have been published in this country of worth, though doubtless many of our native authors have recorded the principal events of their lives and the transactions in which they figured.

George Semple, the architect of old Essex Bridge, Swift's Hospital, St. Patrick's spire, and other works, has left us a short practical "Diary of the Re-building of Essex Bridge" which is incorporated with his volume on "Building in Water." In the preface to the rather rare second edition of his work he gives us a few scant facts connected with his life and works during his professional practice in Dublin and the provinces; but in none of his writings do we hear much from him concerning his own doings or the events of his time. He tells us nothing, or next to nothing, about the architects and builders, and he leaves us to draw our own conclusions, from what he states in connection with his own works, as to what other architects did or likely were doing at the time. A quarter of a century had nigh elapsed from the completion of his principal work before George Semple published the first edition of his book; and the second volume, containing a sort of autobiographical preface, was only issued shortly before the architect's death. The issue of Semple's book could offend no one, for what he said of himself and others was as justifiable during his life as afterwards. He was content to give a simple and truthful

record, but some professional men in our day are anxious that the world should know all about them without much loss of time.

The late Sir Gilbert Scott was certainly a distinguished architect, as all are aware; and he is not very many months in the grave. His "Personal and Professional Recollections" are now published, edited by his son. Although it is instructive to hear much of what the great architect thought, said, and did, we are of opinion there is much also in his "Personal Recollections" which might have been judiciously kept back for some years to come; indeed, we think there are some statements which would be better to have never been published at all. Again, there are matters which we had hoped to find among his "Personal Recollections" which are strangely unrecorded. The late Sir Gilbert was a hard fagger or worker, a pushing professional in his earlier years, but, like most men, he received generous help in more professional and literary quarters than one, and a simple recognition of this assistance would not be out of place in his "Personal Recollections." Self-exertion achieved a good deal for Sir Gilbert, but it did not accomplish everything. His "Memoirs" also show he was conscious of professional distinction among his compeers, and he is not a bit timid in pronouncing an opinion upon his own embodied and unembodied designs. An architect that was so successful in procuring work, and beating other competitors out of the field, ought to have evidenced a little more tolerant feeling. Perhaps he was right in several matters, perhaps in many, but beyond this we are bound to traverse his opinions, and challenge his authority where his judgment is pitted against others, as he steadfastly clings to his own opinion of the superiority of his own designs or works. It is often a dangerous thing to write a book, particularly if it deals with one's-self. Our public and professional lives do not concern ourselves exclusively—indeed it would be a sad day for the world and mankind if they did. The highest character must submit to the brunt of public criticism; and it is not what any particular celebrity may think of himself, but what the educated opinion of his day thinks of him that will be accepted hereafter in evidence of his position and worth and place in history.

Let us have diaries and personal recollections in number from the pens of professional as well as purely literary men, for they will form useful historic materials. Let each man of position claim what is his due right, but let us leave to others the task of estimating our own worth. The world, to be sure, is often slow in recognising valuable services, and many men are fated to die unnoticed or meet only on the brink of the grave the recognition and honour they earned and deserved half a lifetime previous. We best build up a lasting reputation by labour—useful and practical labour—in view of future wants. It is not merely by the amount of work a man performs, but by its value, apart from its cost, that his worth to the world of his time can be estimated. An architect may build up his reputation by one or more of his great works in stone, as an author may do by his books. Great writers, ancient and modern, have given the world one or two masterpieces in their peculiar fields, so have great architects and artists; but the same hands and heads have given us several miserable failures also. Bad books and bad designs are often common to great authors and architects, and no minds are always excelling nor their creations continually excellent.

Many of our city readers know Monkstown Church—the new church, so-called, though upwards of half a century and has passed, we believe, since it was erected. It is not one of the worst of the newly-revived Gothic of its day, though it is certainly a hybrid sort of the Pointed style—a medley or mixture of eastern and western architectural features. The following is an amusing bit of criticism from a descriptive article in a

Dublin magazine of 1834, accompanying an illustration of the church under notice. We do not know who the writer was, but he was evidently "smart," and not altogether unjust:—"It is difficult to fix the order of architecture of this gorgeous edifice—it is *sui generis*; outside it looks somewhat of a mule between the Gothic and Saracenic; the steeple is surmounted by a cross, but the minarets have something of the crescent, though on the whole it has not an unpleasing effect. The interior is of the oddest fancy, we will not call it *taste*. It is of plaster made to represent immense blocks of granite, and even the galleries (!) are of the same character, to keep the congregation in awe, we suppose. Immense blocks are represented ready to tumble on their heads and crush them to atoms. Were they really granite, no earthly power could prevent the attraction of gravity from pulling them from their places. Perhaps the architect, as the whole inside is in Arabesque style, wished, by the position of these ponderous blocks, to give the idea of the Prophet's tomb suspended in the air. Altogether, we never saw a greater perversion of judgment and taste than is displayed throughout the entire building. Many other equally preposterous defects will at once strike an attentive observer; there is not a spot in the church where the eye can rest without pain. From the cross lights behind the pulpit, where *there should be no light*, is a large window of three divisions, so that it is impossible to see the preacher; and under and in the recess of the same window the space is occupied by a curious sort of falling roof, somewhat like the top of a cow shed with battlements in front."

We fear the critic himself was not well posted up in architectural terms; he, however, succeeded in making his readers feel (what he himself doubtless felt) very uncomfortable when they attended service in the new Monkstown Church. We have mixed or hybrid Gothic churches still erecting in our midst as well as those poor specimens that signalled the early days of the Gothic revival in Ireland; but our architects as a whole have made a wonderful advance in mastering the principles of Gothic design. Some of them, to be sure, more often please their own sweet fancies than that of their clients, and end in displeasing the general public. In respect to churches and cathedrals, know ye all, ye faithful and bountiful subscribers of funds, it is not your business to criticise, but the privilege of contributing is yours and will remain with ye till the crack of doom! Harken to the poor but indefatigable curate of Ballybunion, the esteemed of the "restoring" rector:—"Hold your tongue, sir. What's that to you whether the new parish church was built only seventeen years ago or less? Can you deny it wants an organ-loft and stained windows, a new stone pulpit; and is not the floor of the nave and chancel crumbling and offensive to the smell with dry-rot? Yes, sirrah, we do need a 'restoration fund,' and it is to be hoped it will be liberally subscribed to."

Ten years ago, oh most indulgent reader, we stood by a member of the present Government while he was laying the foundation stone of a new Gothic church. About a twelvemonth ago, or upwards, we witnessed its "restoration." It was re-floored, and partly re-pewed; and if the climate is not more favourable to it in the future than in the past few years, the disintegration of the indifferent limestone dressings of its doors and windows will have proceeded so far that wholesale insertions will have to take place. There is every likelihood that this model church—the work of a speculating builder—will need a general restoration every decade; but continuous reparations are likely to keep the congregation alive to the wants of their parish church.

The extract we give below would not be out of place in Mr. Frank Buckland's "Curiosities of Natural History." Mules are credited with some virtues and vices; they are long-lived, hardy and enduring,



being good for a bad road, a tedious journey, and, at the same time, not expensive to feed. On the other hand, mules are said to be very wicked, and difficult to manage betimes; but, we think mules, like other beasts of burden, are sensible of kindness shewn to them, and that they obey a good master. Forty-five years ago a correspondent communicated the following statement to a Dublin print:—"About two miles from the town of Ballymahon, in the County Longford, resides a gentleman who has in his possession two mules of the Spanish breed. They will regularly go to a pump placed in the yard, and while one applies his mouth to the spout, the other works the handle by alternately raising and depressing his shoulder [query, neck]. When one has satisfied his thirst he exchanges place with his companion, and returns the service he has received. Improbable as this may appear to some, it is an absolute fact, and the person who gives the account of it has received it very recently from the owner of the mules, and from several members of his family." The word mule gives several compounds to our language. To be mulish is to be stubborn, like a mule; but, we think, the pig that pays the rent is more stubborn or "contrary," but that's on account of "seeing the wind," we suppose, as he does not like to be made an instrument for "raising the wind" to his own sale and destruction. It is common to hear some people expressing a doubt as to the phenomenon of a dead donkey or mule. They do die, however, we beg to assure the credulous, and asses' and mules' skins and bones are not thrown away as "waste." To a Cockney "knacker" and cat's-meat-man all dead mules and donkeys are acceptable, and appraised at their proper worth.

H.

### THE NEW EDDYSTONE LIGHTHOUSE.

INCLEMENT weather caused a sad disappointment to those who expected a day of toadyism and tuft-hunting at the Eddystone Rock on the 21st ult. There was not wanting a sufficiency of fuss and trumpet-sounding to give *clat* to what is but a work of second-rate difficulty to any but the Trinity House of Deptford Strond, in these days of engineering skill. We wonder much at the absence of the Lord Mayor of Dublin and the rest of the Irish Lights Commissioners from the circle of adulation; but perhaps they were not invited.

It is amusing to read the accounts of the landing of the iron crane-post three tons weight! as if for years at the Fastnet Rock, on every day possible to land, materials of stone and iron were not put ashore far beyond anything in weight at all necessary for the new Eddystone. Although Smeaton's Tower, from its novelty at the time, was deservedly considered a great work, it has long since become insignificant when compared with the modern erections on the west coasts of Ireland and Scotland—for instance, the Tuskar, Carlingford, Calf Rock, Fastnet, Dhuheartach, Skerryvore, Ship Rock, Skelligs or Teraght Island; and proof sufficient exists of the comparative tameness of the sea at the Eddystone in the fact that Rudyerd's wooden tower erected in 1709 remained intact till 1755, and might have remained still but that it was destroyed by fire, not by the sea,—but it had not to contend with the Atlantic swell on the western coast of Ireland or Scotland.

The establishment on Teraght Island in longitude 10° 40' 0" is not only the greatest of modern lighthouse achievements, considering the situation, but interesting as being the most westerly-inhabited land in Great Britain or Ireland, or (if we except Iceland) in Europe. It was not honoured by royalty, nor even a lord mayor; its foundation stone (if it had one) was laid by its designer and architect, Mr. Sloane, in 1865, without notice by Press or public or flourish of trumpets; it was finished in 1870, a like indifference being manifested. In England

the architect of such a work would (as at the Plymouth Breakwater) have been at least knighted, and in France made a Chevalier of the Legion of Honour, but we are too well accustomed to great works in Ireland to mind mere lighthouses, and for the information of our readers we will give the following examples of what has been done in landing materials in difficult situations by Irish workmen during the thirty years of the late engineer's service, all of such works being received by the board as a matter of course, and without note or comment, praise or reward; had he failed in any one, he would have heard of it,—viz., Pillar at Barrels' half-tide Rocks, Courtmacsherry, Co. Cork, 3 tons 7 cwt.; Pillar at Blackhorses, half-tide Rock, Crookhaven, with refuge cage, 6 tons; pillar on Colt's Rocks, half-tide, Berehaven, with cast-iron figure, 2 tons 6 cwt.; bell at Roche's Point (a most difficult matter to handle), 2 tons 15 cwt.; timber mast on ledge to scaward of Wicklow lower lighthouse, 3 tons 2 cwt.; besides the extraordinary engineering feat of erecting the new lighthouse on the summit of Hook Tower in the County Waterford, at 86 ft. from the ground, and many others, the details of which are lost to the profession and the public through the apathy of non-scientific boards and committees, who do not (at least in Ireland) encourage technical literature.\* A rock in Baltimore harbour proved too unsound to support a pillar erected on it, and it is permitted to lie rotting ever since on the pier; the same occurred at the Wheaton or Carriknacrinnaught Rock in Sligo Bay. The Baltimore pillar is over 3 tons weight, the Wheaton Pillar 2 tons 12 cwt., it lies on Ardtermon Strand, and yet, the Muglins in Dublin Bay are left without a mark, as the Board of Trade cannot conscientiously sanction the expense. Is not this enough to make men turn Home Rulers, let their political convictions be otherwise what they may? It would be better if the ordinary public journals would refrain from puffing up a work of which they know nothing. Making a merit of landing an iron crane-post on a rock like the Eddystone, with all the help that three ships could give, is simply "damning with faint praise."

### MUNICIPAL DOINGS.

#### THE PUBLIC HEALTH ACT.

At a recent meeting of the Corporation, the Lord Mayor said, when Mr. Brooks, Sir Arthur Guinness, and himself were in London, they had an interview with the Chief Secretary with reference to the introduction of a clause in a Bill now before Parliament for the purpose of enabling the Public Health Committee to spend some money for the paving of the city, in view of the sanitary necessities of the time. Mr. Lowther stated that the Government had agreed to the course that had been suggested by the Corporation. This would be the means of conferring a very great boon on the city, for it would enable the streets to be paved under the auspices of the Public Health Committee, and this would indeed be a great advantage.

Mr. Brooks, M.P., said Mr. Lowther intimated that, in answer to the memorial from the Corporation, the provisions of the Towns Improvement Act would be extended to the Public Health Act of 1877, and that the Government intended to introduce a clause enabling the Dublin Corporation to avail themselves of the powers possessed by every city in the kingdom except Dublin. They would under these circumstances be enabled to borrow from the Public Works Loan Commissioners a thousand pounds in the first

\* A Manual for Lightkeepers is a case in point, a copy of which was not purchased by the Irish Lighthouse Board, individually or collectively. The Scotch Board act differently with their officials, as do also the London Trinity House. And the Board of Trade allow an ample provision for books every year, which in Ireland is spent on such works as the *Grenville Memoirs*, the *Science of Fox-hunting*, by *Scrutator*, the *Life of the Prince Consort*, *Lothair*, &c. What books for Lightkeepers!—that is, if they ever see them, which is doubtful.

instance, and such other sums as they might require for carrying out the work. Mr. Gray, as the mover of the resolution on which the Council took action, said the Corporation was to be congratulated, and the Government to be thanked in the matter.

#### THE GAS COMPANY'S BILL.

The action of the Corporation in this matter is not so pleasant or satisfactory to themselves and the citizens as the preceding business. According to Sir Arthur Guinness there was no real opposition to the Gas Company's Bill, although one strong defender of the Corporation said, "there never was a bill before Parliament that had received such earnest attention or was more vigorously opposed." Sir Arthur, however, wrote to the Town Clerk:—

"I have to acknowledge yours of the 19th requesting, by direction of the Corporation, my interference in endeavouring to have the Alliance Gas Bill altered. I had, before the receipt of your letter, been for some time in communication with the chairman of the Lords Committee on the subject, as parts of this bill struck me and others as likely to be decidedly detrimental to the interest of the citizens. I failed in having the bill sufficiently amended in the Commons, principally owing to the fact that there was no serious opposition either by the Corporation or others to it. Two objectionable clauses—viz. 41 and 43, have been struck out by Lord Redesdale, and I hope that other portions of the bill will be opposed before the Lords Committee. The Corporation may, perhaps, now enter opposition, and petition against the bill. I shall give any assistance in my power, but I have done all that is possible, unless opposition is offered before the committee."

A motion by Mr. Gray to refer the letter to a committee of the whole house, with power to petition against the bill if necessary, but not to incur further expense, fell through. It was stated by a member that according to the act of 1866 the Gas Company clearly took to themselves the power of using any improved means of lighting that might be invented. There is very little chance of Parliament allowing the Gas Companies of London to lay hold of the electric light for their own advantage, should its success be likely to suff out gas as a means of public lighting. What will not be permitted in the sister kingdom is not likely to be allowed in this country. The Gas Company of Dublin, however, have many fast friends in the Corporation, and some of our municipal representatives are more interested in their gas shares and dividends than in questions of public health and city improvement.

#### PARTY WALLS.

THE extent or boundary of landed property in both town and country has always been defined by single lines; in towns the practice of building solid walls to divide building lots had its origin, not so much as a means of defining the exact extent of each lot, but as a preventative against fire in houses. In times anterior to the year 1189, the greater part of town houses were built with wood and roofed with straw. Such was the case in the City of London; and the frequent fires that took place, owing to this mode of building, compelled the citizens to adopt some measures to avert the recurrence of such calamities. To avoid such danger, the citizens were encouraged to build on their ground a stone house and roofed with tiles. Laws were enacted relative to the wall between two houses, that when two neighbours shall have agreed to build between themselves a wall of stone, each shall give a foot and a-half of his land, and so they shall construct at their joint cost a stone wall 3 ft. thick. Such being the use as well as the origin of substantial party walls, how very wrong it is for anyone to build windows in a party wall, or for an architect or builder in any way to sanction such an encroachment when professionally engaged. Windows in a party wall are the source of much inconvenience and annoyance to neighbours, but the great danger is from fire. H. H.



# BILLS OF QUANTITIES: THEIR PROPER RELATION TO CONTRACTS.\*

(Concluded from page 188.)

THE remarks I have made on the English and Edinburgh systems evidently point to this conclusion, that both are generally advantageous to contractors at the expense of proprietors, and that this state of matters is tolerated simply because proprietors do not understand the subject, and architects, on whom they rely for protection, have not decided—many have not considered—what measures of reform are desirable, or practicable. Cases in which contractors are the victims do sometimes occur, but they are comparatively rare; as a rule, contractors look after their own interests in time, and it may be, as in the case of the Worcester Guildhall (to which I shall further refer), succeed in getting an arrangement made which relieves them but subverts the system. There is no hope for them except by such subversion. Where the systems under review are strictly enforced, most of us have known cases of extreme hardship—as they are called—but which would be more accurately described as cases of gross injustice, in which contractors have been refused payment for work which, to the certain knowledge of both the proprietor and architect, was not provided for in the estimate, and the value of which was deliberately withheld from the contractor on the plea that he was bound to do the work according to the plans and specifications, without reference to the quantities. In such circumstances the case of the contractor is rendered still more hopeless and helpless if the architect is also the measurer and the sole arbitrator. Such a combination of functions is generally to be deprecated, but it is utterly unjustifiable when there is no re-measurement of the work, and its legality would seem as questionable as its expediency. It seems to me an extraordinary thing that any court of law should recognise or respect the pretensions of an individual who claims to be at once the accused and the judge, a party in the arbitration and the sole arbitrator. By a recent decision, however, in the case of *Stevenson versus Watson*, in the Court of Common Pleas, it appears to be ruled that an architect may so act; and that because he must exercise “judgment or opinion” in two of these capacities, he shall be utterly irresponsible for his conduct in the third. That at least is how I understand Lord Coleridge’s judgment in this case. The quantities taken out by the architect and the additions and omissions measured by him may be grossly inaccurate, but because he has to exercise “judgment or opinion” as judge and sole arbitrator in his own cause, the contractor must be debarred from challenging his accuracy, and must be left helplessly at his mercy. Of course in the case in point there may actually be no inaccuracy. I express no opinion on that subject, not having seen the arguments, though the above inference seems to be warranted by the judge’s opinions. I am tempted here to refer to a remark which fell from Mr. Justice Denman. He said:—“Ordinary acquaintance with building contracts showed that an architect could not be regarded as a mere caster-up of figures, and ought not, therefore, to be held liable for negligence where a mistake in figures or measurements occurred.” That is a strictly fair and accurate statement of an architect’s position; it is not a strictly accurate statement of a measurer’s position. The latter is clearly responsible for the accuracy of figures and measurements, and the architect-surveyor cannot escape from this responsibility by the mere assumption of the twofold duty without great injustice to contractors. In such a case as that of *Stevenson versus Watson*, it may for ever remain doubtful whether the contractor is justly treated or not; but here again, as in my previous illustration, the re-measurement system would

clear away all dubiety, and prevent all chance of complications and law-suits, thus standing out in marked and favourable contrast with the prevailing systems in England and Edinburgh.

The grand obstacle to the satisfactory working of these systems as at present practised seems to be the impossibility of securing either an effective attachment of responsibility or the substantial results of its due recognition. While some legal authorities maintain that the measurer is responsible both to the proprietor and the contractor, others hold that he is responsible only to the proprietor, who is responsible to the contractor. This latter view seems most consistent with the well-known legal principle that one cannot at once “approve and reprobate.” If a proprietor issues a schedule of quantities as a safe guide for a tradesman from whom he wishes a tender, it seems most consistent, both with sound law and sound common sense, that he should bear the consequences of inaccuracies which might prejudice such offerer; otherwise contractors might be systematically swindled with impunity. But at present special agreements, in violation both of common sense and law, come in to cause confusion and seeming contradiction in legal decisions. Such *ex parte* contentions however can hardly be justified, and at all events it will generally be found in practice that while proprietors are not likely to hear much about quantities which err by excess they are sure to find the burden of responsibility for any serious deficiencies, by some means or other rolled over upon them. In this connection such a dispute as that which recently arose regarding the contract for the Worcester Guildhall is instructive. In this case, which was reported in the professional journals about six months ago, it is the contractor as usual who discovers that he is aggrieved. He demands a readjustment of the contract on the ground that the quantities supplied to him for his guidance in making a tender were inaccurate, which he is prepared to prove. This seems a most reasonable demand, but he is met with the plea that the bills of quantities were not referred to in the contract. This plea, however, was not maintained, and ultimately a new arrangement was made with the contractor; the proprietors no doubt in this case recognised the manifest absurdity of expecting the tradesmen, before offering, to satisfy themselves as to the accuracy of the quantities. It will always be extremely difficult for proprietors to get rid of the responsibility of their own act in issuing quantities; it ought to be impossible for them to do so. Many cases such as the above prove that, in addition to other burdens which the present system lays upon them, they may at any time be called upon to submit to a “scientific rectification” of the contract at the instance of the contractor; and this notwithstanding that theoretically they are not responsible. As I have shown, the payment of the surveyor by—although it is really only *through*—the contractor, is held to make him the contractor’s servant and so responsible to him. I have already shown how prejudicial this is to the proprietor’s interest, but besides that, it is not a straightforward arrangement, and as we should expect, misses its object. The truth is that the full acceptance of this responsibility by surveyors would in most cases be of not the slightest avail either to the proprietor or the contractor, because obviously a guarantee of accuracy is valueless unless the guarantor has adequate means to meet claims which those to whom he is responsible may legally prefer, or rather substantiate. Now I fear both proprietors and contractors would stand a very poor chance of getting two or three thousand pounds—or even two or three hundred pounds—from the average quantity-surveyor, however valid their claim; and if so it is clear that this attachment of responsibility is merely fictitious. Some have proposed that architects should be responsible, but under the present system with which we are at present dealing, architects are not in-

volved unless they think proper to involve themselves by acting as surveyors—a practice which, under present circumstances, is probably as objectionable as if they also acted as masons or joiners. Architects who act as their own surveyors necessarily put themselves into this equivocal position: they are liable at any time to be pursued by the contractor, who, theoretically, is their master; and surely a contractor can make an action-at-law a more powerful lever for moving the architect as he pleases than a direct bribe. On the other hand the architect-surveyor alone can discover and expose blunders of his own which prejudice the proprietor who is also his client, and if the exposure of such blunders would involve him in a loss of several hundred pounds I leave you to estimate the chances of such an exposure being made. The position of the architect as the impartial arbiter between the contractor and proprietor is one of sufficient difficulty and delicacy without the interference of such complicated responsibilities, the effects of which, on average human nature at least, must be vicious and demoralizing.

Upon the whole, I think it must be conceded that the English and Edinburgh systems are inconsistent with any intelligible theory of the proper relation of parties, and that the practical outcome of both is this: To the proprietor, unproductive expense, indefinite responsibility liability for payment of work which he does not get, but which has been either inadvertently or purposely measured in excess of what the plans and specifications require; to the contractor, great facilities for estimating, for obtaining payment for everything which he does, and for obtaining payment for much that he leaves undone.

The remaining system to be considered, that practised in Glasgow, distributes its favours more equally. By it the proprietor is entirely relieved from responsibility connected with the quantities; he is called upon to pay only for what he gets, and the contractor gets paid for what he does and nothing more—nothing being referred to in the final measurement except what has been actually done and measured.

This mode of contracting is by no means free from drawbacks, but it is the logical consequence of the interference of the proprietor or his architect with the preparation of the schedule of quantities, and I can see no escape from it. It has many excellent points: it solves the difficult question of responsibility which we have just been considering, and supplies the only substitute for a guarantee of absolute accuracy which has been practically tested. The experience of many years has proved that this substitute is complete and satisfactory, or as nearly so as the circumstances permit. The arrangement is equitable, and it deals impartially with the two parties chiefly interested, which, as I have shown, the other systems do not. Even clerical errors are as likely to benefit the one as the other, and there is always the check of the second measurement *de novo*. The result is that all cause of quarrel and excuse for complaint is removed, actions connected with contracts are almost unknown, and the system altogether works satisfactorily on this solid and intelligible basis: the mutual convenience and interests of the parties. The defects of the system have recently been the subject of discussion before the Glasgow Architectural Society. They are almost entirely of a kind which would vanish before a little determination and co-operation on the part of architects and measurers; and I have no doubt that some improvements will very soon be introduced. Passing from this I must notice one objection which is often urged against the system: that it leaves a proprietor in uncertainty as to the cost of a building till it is finished and measured. But this is not so, unless the architect has neglected his duty in the preparation of proper plans and specifications. If an architect neglects his duty in this respect, the proprietor is not relieved from this uncertainty by any other system, as it is then

\* By Mr. John Honeyman. Read before the Royal Institute of British Architects on 19th May.



impossible to foresee the probable extras. If it were otherwise the objection would be fatal to the Glasgow system; but if the experience of a hundred years proves that there is no likelihood of any discrepancy between the estimate and the measurement—that practically there is none, except where it can be clearly traced to the carelessness of the architect or the measurer—then it will be seen that there is little weight in the objection. If the architect and measurer do their duty, there need be and there will be no difference between the measurement and the estimate; if they neglect their duty it is perfectly obvious that, in justice both to the proprietor and the contractor, there *ought* to be a difference, and the two offenders, or one of them, should at least suffer in professional reputation.

It can, I think, be proved that with equally explicit plans and specifications, there is less chance of the final account exceeding the tender under the system of re-measurement than under any other; and not only so, but (and this is an important set-off against some uncertainty) the work is done at lower rates than if it were not to be re-measured. It is only in localities such as Edinburgh and Glasgow, where contractors are accustomed to both systems, that a comparison in this particular is possible, and there it has been abundantly proved. I have been assured by contractors of high standing and long experience that they invariably charged from 10 to 15 per cent. more for work which was not to be re-measured, besides a considerable sum to cover contingencies. When the work is re-measured, not only does the proprietor pay only for what he gets, but he pays from 10 to 15 per cent. less for it; and this, you will admit, is a very substantial advantage. Another objection, which may be fairly urged against the Glasgow system, is that it has a tendency to encourage carelessness in the preparation of the documents necessary for obtaining an accurate estimate. Knowing that all will be made right at last, the architect is tempted to pass the plans on to the measurer in an incomplete state, and the measurer to assume quantities which, in consequence of that incompleteness, cannot be exactly ascertained. The undue haste of the architect, it is true, is often the result of undue pressure from the proprietor, who does not realise how necessary ample time is for the preparation of complete working drawings. By resisting this urgency we may escape the danger on the one side, and by exercising proper authority over the measurer we may escape it on the other. Of defects of a more accidental character I shall mention only two. One is, that the facilities afforded by the system for obtaining estimates encourage young men to undertake work on their own account before they are properly qualified to do so. A man who could not write a specification himself gets an experienced measurer to prepare schedules for him, who thus gives him the benefit of the specifications of others. Another defect is the undue delay which usually occurs in settling accounts. This is caused chiefly by measurers neglecting old work for the sake of securing new; and to such an extent is this sometimes carried, that I have known premises entirely and satisfactorily finished and occupied for twelve or eighteen months before the tradesmen's balances could be ascertained. This, I need hardly say, leads to much inconvenience, and frequently to heavy and undeserved loss, both to contractors and architects. I endeavour to mitigate this abuse by employing several measurers, instead of confining myself to one or two, which would really be much more convenient and agreeable in many respects. But there is no reason why the evil should exist at all; and it might, with other abuses, be entirely swept away, if architects would co-operate and take a more complete control over all the operations of the measurer.

It may, perhaps, occur to some to suggest another objection to the system: namely, that it is impracticable—that it is, in short,

impossible to re-measure a large building; but that objection is very easily disposed of. It is not only practicable, but it is constantly done, and buildings of every size and complexity of detail have been measured when finished in Glasgow and its neighbourhood during many generations; that question, therefore, need not be discussed.

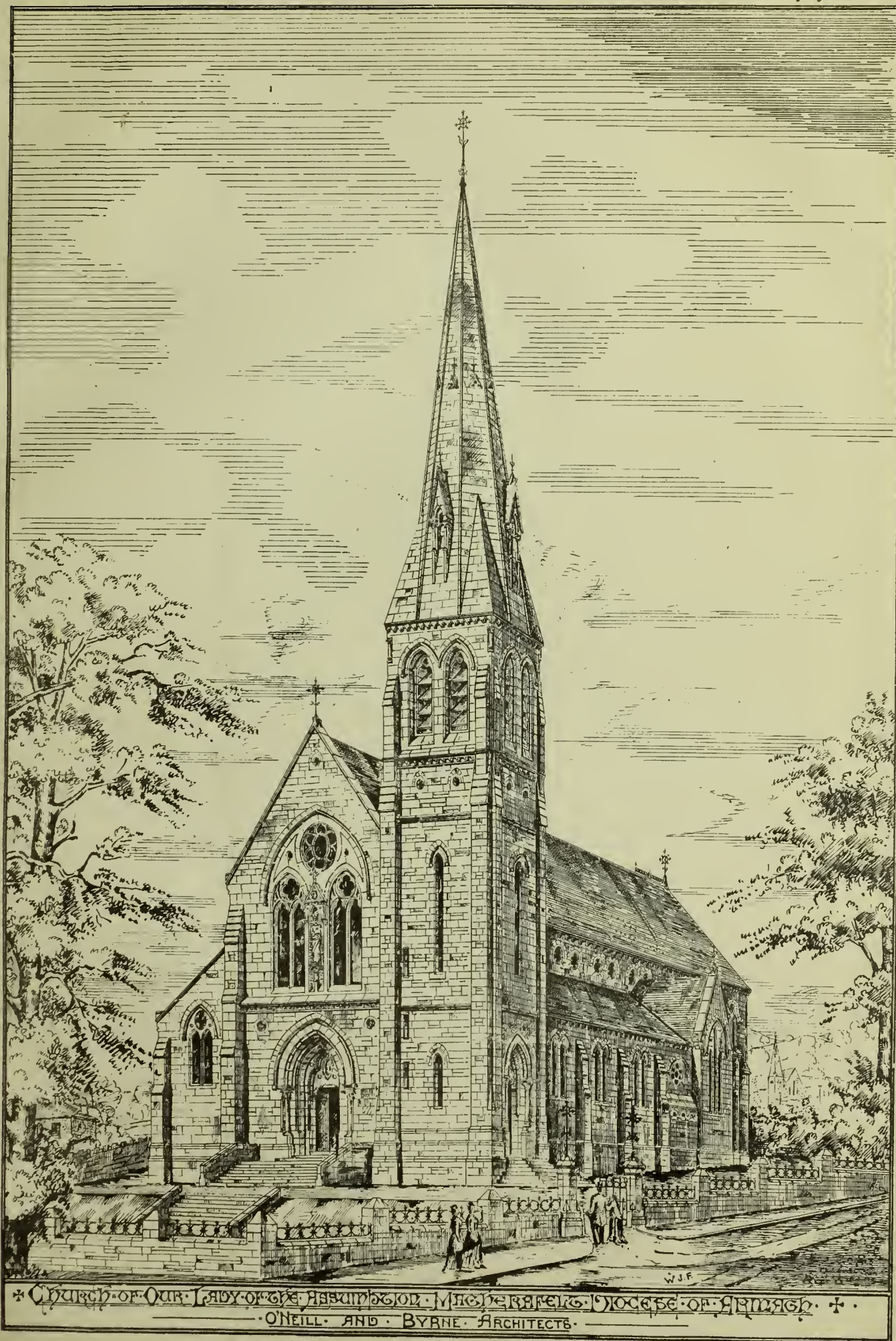
III. *Proposed changes.*—What I have already advanced points to these conclusions: That the usual practice in contracting is radically defective, being based upon false principles, which are inimical to the essential requirement of any tolerable system—namely, that it should insure justice to both parties to the contract; and that the practice of making the schedule the basis of the contract and re-measuring the work when finished is sound theoretically, and practically efficient. If this be so, it necessarily follows that it is the duty of our profession to make considerable changes in the direction of adopting the good features of the re-measurement system, eliminating the bad, and guarding against its accidental abuses. This involves an entire change in the relation of the bill of quantities to the contract. In short, if we take any cognisance of the quantities at all, we must, in justice to our clients, recognise them to be, along with and quite as much as the plans and specifications, the basis of the contract. I have not said that that course is preferable to our taking no cognisance of quantities at all; but what I do insist upon is, that we must adopt either one alternative or the other—either to have *nothing* to do with the quantities, or to have *everything* to do with them; either to allow the quantity-surveyor to be entirely the servant of the contractor, or entirely the servant of the proprietor, and therefore our servant, directly under our guidance and control.

I have thought it advisable to occupy the time at my disposal to-night chiefly in exposing the errors of existing systems, feeling that it was impossible on this occasion both to treat that part of my subject with sufficient detail and also to explain various modifications of the re-measurement system which might be advantageously introduced. Besides, I am sensible that it is vain to talk of the details of reform if I fail to convince you that reform is needed. I cannot indeed believe that the members of the profession generally are content with matters as they stand. Recent discussions of kindred societies, recent articles and correspondence in professional journals, recent opinions of counsel and actions before our courts of law, all indicate at once the existence of widespread dissatisfaction and its justification. Indeed the time seems rapidly approaching, if it has not already arrived, when we shall be compelled to deal with the whole subject in a liberal and resolute spirit. Meantime, I shall only further trespass on your patience in the hope of extending the scope of the discussion by re-making, in conclusion, one or two additional remarks on the measurement system, towards which I think we are gradually approaching. An ideal contract would secure for the contractor payment for everything he was required to do at certain pre-arranged definite rates, or where these do not apply, at current rates; and, on the other hand, it would secure for the proprietor full and just value for every penny which he was required to pay. Now this ideal is very fairly realised if the work is carefully measured and priced to begin with, and again carefully measured and priced when finished. The whole thing is remarkably simple; there is no mystery or difficulty about it. All parties have good grounds for satisfaction with such an arrangement; and I may add that there is no difficulty in dealing with every variety of work in the same way. It may be interesting as indicating how successfully such a system disposes of all legal difficulties, and how well it works even with its present defects, if I mention, on taking a hurried retrospect of my own experience since I commenced business on my own account, that I have accepted upwards of 1,100 tenders for the principal departments

of work connected with buildings, besides innumerable offers for specialties; I have had to cancel contracts, to supersede bad contractors, to get rid of bankrupt contractors and arrange with their creditors without allowing the interests of my clients to suffer; to make deductions from contractors' claims; and, generally, to do all the varieties of disagreeable work usually devolving upon us in connection with such matters. But the lawyers have had nothing whatever to do with these 1,100 contracts, and not one single action-at-law has emerged in connection with them. A system capable of producing such results would doubtless, if freed from its admitted defects, prove generally acceptable and highly beneficial. In this matter, however, we are helpless, unless we act in unison, and we naturally turn to such a body as this Institute for guidance.

It will be observed that the proposed changes which I recommend are: a radical change in the relation of the bills of quantities to the contract, and subordinate changes which will then be expedient. I shall now only venture to mention one of these. Assuming that the system of re-measuring is generally adopted, it will be found that in some respects the interests of architects will be more directly affected than at present by the conduct of the measurers, and it has occurred to me that many of the minor defects which we find in the working of the system might be removed and the interests of the profession protected, if measurers were not allowed to practise—in other words, if they were not employed by architects—unless they held a certificate of competency from the Institute. This at first sight seems rather a startling proposal; but after a good deal of consideration I believe it to be practicable, and I am certain that, if carried out, it would be beneficial. I may not now expound the many reasons which support this belief, but I may remark generally that if a change in the mode of estimating is introduced, such as I believe to be necessary to meet fairly the exigencies of the case, it is evident that it will rest entirely with the architects of the country to determine the exact position which the measurer shall hold, and the functions which he shall perform. In the altered circumstances, indeed, architects might with perfect propriety measure their own works, or even make measuring a branch of their business; although I may say that, personally, I regard such a course with strong repugnance. Now, in suggesting such a comprehensive stretch of the Institute's authority, it must not be supposed that I speak merely as a member of the Institute with an exaggerated idea of its cosmopolitan influence. I know very well how far short it comes of our ideal; but it is, nevertheless, all we have in the shape of a national professional association, and in such matters of general interest it is bound to assert itself, and to direct and govern the current of reform. Were I not a member, I would be equally solicitous that the Institute should take the matter in hand; and this feeling will, I am sure, be shared by members of the profession throughout the country. It is to be regretted that every one who is duly qualified is not a member. It is needless to point out how immensely such union would strengthen our position as a profession when we come to deal practically with measures such as these, directly affecting us all. I am confident, however, that in introducing changes in our mode of contracting, which may be generally acknowledged to be beneficial, the Institute might safely calculate upon the active and hearty co-operation of all members of the profession throughout the country. Even now the representative character of the Institute, and its value as the only organization which can efficiently deal with professional difficulties, is more generally recognised than it has ever been before; and I am sanguine enough to believe that that recognition is destined to be progressively more cordial, more universal, and therefore more energetic.







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## THE ROYAL DUBLIN SOCIETY AND THE SCIENCE AND ART SCHEME.

OUR readers are pretty well acquainted with the history of the Science and Art Museum scheme in connection with the Royal Dublin Society, and the attempts made by the South Kensington subordinates to swallow up both the Royal Irish Academy and the Royal Dublin Society by an amalgamation scheme. What followed after the Royal Dublin Society was "taken over" we informed our readers, and what was likely to follow we shadowed forth, if a determined stand was not made for enforcing the agreement arrived at, before it was too late. We are glad to see that the Royal Dublin Society has succeeded in maintaining its claims; but the great danger it ran, and the difficulties it experienced, is chargeable to a large extent upon some of its own council, members, and officials. At the stated general meeting of the society held on the 5th ult., his Grace the Duke of Leinster being in the chair, the following report was read by Dr. Johnstone Stoney, hon. sec. :—

Through the kind intervention of Sir Arthur Guinness, to whom the council feel that the society is under a deep obligation, an interview was brought about between the Lords of the Committee of Council on Education, and a deputation from the council of this society, at which Sir Michael Hicks Beach and Mr. Smith, two of the members of the Government which had contracted the original agreement with the society, were fortunately present. At this interview the deputation were able to satisfy the Government that the statement of the original agreement made by the delegates in their report to the council of the 15th May, 1879, was correct, and that the society had throughout only sought a fulfilment of the agreement entered into in 1877. This resulted in the Government consenting to limit their offer of £25,000 to clauses 9 and 10, with such an explanation of clause 1 as removed a difficulty felt by the Government without in effect limiting the rights of the society under that clause. This is the basis of negotiations originally asked for by the council, and the council was thus able at once to conclude the terms of agreement, which are now submitted for confirmation by the society :—

1. In consideration of the payment of £25,000 the Government to be discharged from all claims under clauses 9 and 10 of the agreement of 5th March, 1877. 2. The Royal Dublin Society to retain the right to office accommodation for its functions in agriculture reserved to it by section 1 of the agreement of 5th March, provided that such office accommodation be the same with, and no greater than, such as would be necessary for the society's functions in science; and provided that, if hereafter any amalgamation takes place between any section of the Royal Dublin Society and another society, such amalgamation shall not entitle the other society to any rights of occupation in Leinster House, unless a special sanction be obtained from the Government. 3. The Royal Dublin Society to have the rooms in Leinster House indicated by a cross on the subjoined plans, viz., four rooms on the ground floor (A, B, C, and E), one room on the first floor (b), and suitable accommodation in the basement for a servant and stores. The trustees of the library and visitors of the museum to have the right to hold their meetings in one of the rooms on the ground floor, either B or C. 4. The Royal Dublin Society to have the use, but not the exclusive use, of the entrance hall and passages to these rooms, not only for the purposes of access to their rooms, but to place the statuary and other works of art reserved to the society by section 2 of the agreement of 5th March. Accommodation to be provided for hats and coats in the hall, subject to these requirements of the society, the space to be available for the Science and Art Museum. When the library is removed, apartments to be allocated to a resident officer of the Royal Dublin Society. In the meantime provision to be made by the Science and Art Department for the ordinary cleaning of the society's rooms in Leinster House. 5. The appropriation of rooms to be liable to revision by the Lords of the Committee of Council on Education, when the new Science and Art Museum is built, provided that the Royal Dublin Society does not receive less accommodation by such new arrangement. Nothing in this agreement shall affect the operation of clause 1 of the agreement of 5th March, 1877, except so far as it applies to agriculture. 6. The agricultural shows to be removed from Kildare-street within a year from the payment of the first instalment of £10,000;

it being understood that the offer of temporary office accommodation made by the letter dated 26th November, 1878, to the Irish Government for the Agricultural Section in Kildare-street, is not renewed. 7. The Treasury to withdraw the present limit of £300 per annum on the printing of scientific proceedings and transactions of the society, that is to say, that all strictly scientific proceedings and transactions of the society, received within the period mentioned in the agreement, will be printed in as good a manner as those of the Royal Society, and 1,000 copies furnished to the society free of expense; but the society to be at liberty to get further copies struck off at its own expense. 8. The payment of £25,000 to be in three instalments—£10,000 this year, £10,000 in 1880, and £5,000 in 1881.

GEORGE HAMILTON,

Vice-President of the Committee of Council on Education.

May 27th, 1879.

G. JOHNSTONE STONEY,  
Hon. Sec. Royal Dublin Society.

May 29th, 1879.

As the time within which the shows must be removed is limited by this agreement, the council ask the society to empower them to acquire a site for the future shows of the society, and to enter into contracts for the erection of the necessary buildings, &c.

The council is happy to report that the competition for the Taylor Prizes this year excited more than usual interest. The number of works sent in was 11. Of these two were disqualified on account of the student not having conformed to the regulations. On the report of the judges the trustees awarded the prizes as follow: £60—Scholarship, tenable for two years, to Vincent Gernon, student of the Royal Academy, Antwerp, for his work in oils, entitled "Scene from Corneille's tragedy, 'Cinna.'" £35—Scholarship to Edward J. Brennan, student of the Royal Hibernian Academy, for his work in oils, entitled "Under the Chestnuts." £15—Prize to Harry Jones, student of Mr. Heatherly's Academy, London, for his work in oils, entitled "A Composition of Four Figures: Interior of a Cottage." £10—Prize to Frank Walter Osborne, student of the Royal Hibernian Academy, for his work in oils, entitled "View from Templeogue Bridge, Co. Dublin."

In moving the adoption of the report, Dr. Stoney entered into a detailed statement concerning the negotiations that had taken place. His statement concluded thus :—

The net result of the whole arrangement would be that the society would receive £35,000 in money—£10,000 paid originally, and £25,000 to be paid under the new scheme, out of which it would have to provide itself with a site and buildings for its future shows. It had ceased to have charge of the great museum and library, but it had retained a large part of the management of them, through the functions which were to be discharged in relation to this institution by the council and trustees of the library and the board of visitors of the museum, upon which bodies this society appointed eight in the case of the trustees of the library, and five in the case of the visitors of the museum; the society would be in a state of complete independence of all Government departments, and this, he believed, was the first time in the history of societies of this class in Ireland that a society had been placed in this favourable position. The Dublin Society would actually be in receipt of no public money whatever; the house was reserved to it as part of the compensation for the very large property transferred exclusively to the Government, where it had formerly been held, partly by the Government and partly by the society—£35,000 was to be paid to the society for its portion of the interest in this large property, with the use of a sufficient portion of this house—the use of the museum in perpetuity, and of the library, so far as the borrowing of books by all the members who had entered before the beginning of 1878 was concerned. The society had also reserved to itself the exclusive possession of a very important portion of the library—namely, that portion which consists of scientific serials, and the transactions and proceedings of other scientific societies, which were in fact the materials with which it could assume its proper place as the head scientific society of Ireland. There remained now for the society to get its new charter, which had been promised to it, and to proceed to reorganise itself on its own basis. He believed that a greater future was before this society than its history could show in the past, and that there was every prospect that both its agricultural functions, and all branches of its scientific functions, which included the kind of work represented by the Royal Society of London, the Society of Arts, and the Royal Institution, would be in a state of greater

efficiency than ever, and there was every reason to believe that the society would be the great centre of the highest scientific work in Ireland, while at the same time it would be a great medium for the dissemination of popular knowledge in regard to science and interesting information generally. The real conditions under which such a society as that could carry on its functions without having recourse to the British Treasury had almost come to them without being sought for. It would have been very difficult to have brought these conditions into existence. It was plain that the combination of functions which it represented could not be called into existence if they had now to be created—they had come down to them from a past that extended back for a century and a-half—they had grown with the growth of the society, and they had got all the strength that arose from things that had grown naturally instead of being called artificially into existence. He hoped these functions would long continue to be discharged with full effect. The combination of advantages held out by this society had kept up the number of its members in the past, and there was every reason to believe that, as soon as the full advantages to be obtained from the new society came to be known, their numbers would increase instead of falling off. They would start with an actual capital, combining what they had themselves accumulated with what they were getting from the Government, of £47,000, and an annual income of about £1,500 a-year, with a splendid position—the best in Dublin for the housing of such a society, with a body of members through whom every branch of its functions could be discharged with the greatest efficiency. He did not believe any society could start under more favourable circumstances, and he trusted the future of the society would verify the promise which they had now of its efficiency in all the branches of its work.

Mr. George Woods Maunsell, who, all through the thick and thin of the conflict with South Kensington, battled stoutly for the rights of the Dublin Society, made the following remarks in seconding the motion for the adoption of the report :—

It was a great satisfaction to him, looking back to the discussions which had taken place there in the month of February, to find that a solution, at once happy, prosperous, and peaceful, had been arrived at in the interests of this society. When the society, by an overwhelming vote in the month of February last, resolved to struggle for independence, and some of its members expressed their views, himself amongst the number, in no very measured terms, of the way they had been treated, he heard nothing but dark, ominous rumours, that whatever might come they had ruined the cause of the society, and it seemed a conceded fact that the society was to be handed over, bound hand and foot, to some gentleman occupying the back parlours in South Kensington. The susceptibilities of the country, the historical traditions of a great society, and the opinions formed of their great usefulness, were all to be ignored, and they were told that by the Act of 1877 they had been handed over, and had no longer a house to live in or independence to assert. It was not, perhaps, the least of their misfortunes that out of doors some gentlemen, who thought that amalgamation with another society was a most important question to be entertained, were found amongst those who urgently counselled them to submit to that dictation from London, and abandon their house and their independence for ever. He was rejoiced, therefore, when, on going before the Department of Science and Art in London, they experienced a very different tone from the noble duke at its head, and the noble lord who was his ally, to what they had heard from the subordinate officials who had to deal with the question before. They recognised at once the characteristics of the society, the necessity for its independence, and the justice of their claims, and, as far as the deputation could form an opinion, their lordships heard of many of the proceedings that had taken place, he should say, with astonishment. It was a happy augury for the future that departments in London, which thought that Irish bodies, Irish opinions, might be set at naught, and ruled by an authoritative ukase from every subordinate official, had received a very heavy blow and discouragement for the future, and he rejoiced that they of the Royal Dublin Society had had a hand in accomplishing that result. In another society in Dublin a notice of motion was given that if an amalgamation were to take place they were not to meet in that house. It was not enough that they were to be thrust out by the Government, but an amalgamation was not even to take place until after it had definitely settled that they were not to meet there. It would be a great comfort to those who had been hugging themselves with the prospects of



such a result to learn that they (the Dublin Society) were there in perpetuity, in a house fit for a duke, with £47,000 in their pockets, and with liberty to carry on their operations for all time. He would like to let by-gones be by-gones; but those who wanted to come there, instead of forming a neutral name, and looking for a place outside those walls, must come there and look after them as after a dignified heiress, who had possession of that place and property. It would be no disparagement to anybody who sought their alliance to say that they should adopt their name when they came into possession of their property. They struck hard from the shoulder when they fought; but when the battle was over they were willing to shake hands. They did not want to preserve any animosity against those who were working on the same lines with them; on the contrary, if they came to them in the way he said, they would be happy to receive them with open arms, to give them the use of their latchkey, and to do everything they could to make them comfortable. He held that they had obtained a great result not only for that society, but for all other public bodies in Ireland. They had shown that by going to the hands of a Government Department they could obtain consideration for just claims fairly put forward. They had obtained everything that that society contended for; and he trusted that there would be no further difficulty in providing the Museum, which had been promised, and which they trusted would tend still further to develop art and science in Ireland. Agriculture was the ground on which that society had become eminent. Its shows had done much to improve the stock, the tillage, and the farming implements of the country. It would continue to be promoted under the auspices of that society more effectually than ever, now that they had more elbow room; and he trusted that all the other agricultural societies in the country would join them in the work heartily, and they would welcome them cheerfully.

All is well that ends well, and we hope it has ended well for the future of the Royal Dublin Society.

### THE ART OF THE ITALIAN RENAISSANCE.\*

(Continued from page 184.)

THEY had now to consider an important period of transition; the latter part of the fifteenth century, when the Pagan leaven of the Renaissance began to work more distinctly than it had previously done. Hitherto, with one or two exceptions, no painter had put his strength into distinctly Pagan subjects. Now they met with a number of painters whose grand aim was the perfection of their art. Scientific perspective became a prominent feature, and the nude figure was studied with indefatigable research into its anatomy. Oil painting became the recognised medium for the colourists and chiaroscuroists; and finally Fra Bartolomeo, breaking through the old system of rigid composition, founded on the basso-relievo, introduced that modern style based upon geometric forms, yet free and flowing, and more suitable to canvas and oil-colour, which Raphael adopted from him. Formerly the picture was merely a means to an end, the end being the edification of men's souls; now it was an end in itself. Painters began, like certain persons of our own day, to take a simply "decorative" view of life and religion. The ordinary subjects of religious art came to be regarded less and less as objects of spiritual contemplation, and more and more as mere motives for fine pictorial composition. In speaking of the Bellini the lecturer had already had occasion to allude to Andrea Mantegna, and his influence upon him. Andrea Mantegna was the most important representative of the Paduan school. The originator of that school was an enterprising tailor and embroiderer who had a taste for collecting antiquities, and who instructed youths by placing before them models from the antique, and pictures from various places, chiefly Florence and Rome. He claimed to have taught 137 pupils, but

his one great pupil was Andrea Mantegna, the son of a poor man who, like Giotto, spent his childhood as a shepherd. A Virgin and Child, painted at the age of seventeen, was a work of precocious genius, and his frescos, begun a little later, were masterpieces which contained the elements of his mature style. In one of them occurred a strange *tour de force* of perspective, afterwards partly adopted by the artist in his "Triumph of Julius Caesar," namely, the placing of the point of sight below the lower margin of the picture, the feet of all the figures, except those in the foreground, being thus cut off. The low horizon, by increasing the apparent height of the buildings and the human figures, produced a certain grandiose effect. There was a severe grandeur in frescos of the artist which was not to be found in the works of any other painter—something which affected the imagination like Bach's music. It would be just as absurd to call Mantegna's work mechanical because it was subject to rigidly applied rules of composition as it would be to say the same of Bach's. Both men had passionate natures underlying that love of strict form which sprang from their stern determination to build their ideal upon a sure foundation. The beauty they aimed at was not of a vulgar or common type. Its secret did not lie on the surface, to be seized by every chance-comer—it should be searched for, and was only to be had after much tough intellectual wrestling; but, once conquered, it had an abiding charm. It would, perhaps, be too much to say that the art of Mantegna was as perfect as that of Bach, though in his greatest works he might be said to combine a science analogous to Bach's, with something of the dramatic power of Gluck. There were mechanical difficulties in the art of painting which made it the least perfect of the arts; and, for us of the nineteenth century at least, painting appealed to the emotions much less powerfully than music. In Mantegna's frescoes, "The Trial of St. James," there were stern and vigorous drawing, boldness of attitude, and splendid architectural composition. As to perspective, nothing was left to haphazard. Every one of the figures was drawn with perfect accuracy of measurement exactly as if it were a piece of masonry, each having probably been at first plotted out as a rectangular object standing on a given plane. All that might seem mechanical, but the labours of such men as Piero della Francesca and Mantegna so educated the eyes and hands of subsequent artists as to enable men like Michael Angelo and Tintoretto to perform feats of perspective almost instinctively. But there was also in the same fresco a dramatic power of a rare kind, free from exaggeration. In colour the frescos of Mantegna were very dry and hard; still they had a certain bitter grandeur. Mantegna's quarrelsome temper kept him in hot water with his neighbours. His "Triumph of Julius Caesar," now in Hampton-court, was intended as part of the decoration of a classical theatre where the plays of Terence and Plautus were acted. On it he lavished all his skill in drawing and perspective, and unrivalled knowledge of the antique, and united in the work severe grandeur of composition with endless wealth of incident, ideal grace with realistic detail. Afterwards he painted several classical and mythological subjects, including the "Triumph of Scipio," now in the National Gallery, London. His death occurred in 1506, in his 76th year. He possessed an almost unique power of uniting magnificent complexity of detail with severe grandeur of total effect. In him what was best in the Renaissance culminated. He absorbed all its influences and gave them back to the world transformed into artistic forms essentially modern, yet full of a lofty ideality and in the best sense classical. He was a diligent and laborious student of nature, yet never condescending to dull mechanical imitation. The deep and glowing fire of his imagination fused together all that entered its furnace as dead material, and re-created it by its own vital power.

Contemporary with Mantegna, though some years older than he, lived another great perspectivist who appeared to have worked from an independent standpoint: Piero della Francesca. He was born at Arezzo about 1420, and was the father of that branch of the Tuscan School which had been called Umbro-Florentine, from its uniting Umbrian feeling with Florentine technical methods. He aimed at something not included in Mantegna's limited colour system, namely, that aerial perspective and effect of diffused light over a large space of landscape brought to such perfection by Turner. But whereas Turner frequently sacrificed colour to light, Francesca aimed at harmony between diffused light and local colour. As a draughtsman of the figure he was far behind Mantegna. He appeared to have studied nature in an idealising spirit, and his exquisite sense of colour was strangely combined with apparent obtuseness as to beauty of form. In imagination and reach of intellect he was far below Mantegna. They next came to a very important group of men, who, like the perspectivists, devoted themselves to a special study in connection with their art—namely, the students of anatomy. It would appear that the systematic study of anatomy only began in the latter half of the fifteenth century, the pioneer in it being Antonio Pollajuolo, who, according to Vasari, dissected many human bodies, and was the first to investigate the action of the muscles in that manner in order that he might give them their due effect on his works. Dissections of the human body had been up to that time only practised by medical students. Antonio Pollajuolo and his brother, Pietro, who assisted him in many of his works, were workers in gold and bronze, and sculptors as well as painters. Both did something towards perfecting the art of oil painting, but their influence was chiefly as draughtsmen of the human figure in violent action. Antonio was the master-spirit of the two—a violent and daring gladiator of the brush and pencil, who delighted in depicting scenes of bloodshed and violence, combats, martyrdoms, and the like. He painted Hercules strangling Antæus, and the same hero's feats of killing the lion and destroying the hydra. The martyrdom of St. Sebastian, now in the National Gallery, London, was by Vasari, attributed to Antonio, but by others Pietro, who was said to be the better painter of the two. The Pollajuolo were chiaroscuroists rather than colourists. The next great name was that of Luca Signorelli, the herald of Michael Angelo. He was born in 1441 at Corlona. He devoted himself to anatomy with such passionate diligence that he became the greatest anatomical draughtsman of his day. His drawings rivalled those of Michael Angelo and Leonardo in accuracy, and he delighted in depicting extraordinary bodily positions and actions. As a draughtsman he was less coarse than Pollajuolo, but much more powerful. He was a rugged realist, painting models as a rule, though there was great beauty and dignity in some of his figures. He showed imagination and feeling in his treatment of both Christian and Pagan subjects. His frescos included the Resurrection, the Last Judgment, the Destruction of the Wicked, Paradise, and the Preaching of Antichrist and his fall from heaven. These frescos Michael Angelo diligently studied and even copied.

THE ENNYSTONE LIGHTHOUSE.—Why (asks the *Broad Arrow*), instead of building a new lighthouse, does not some genius lit upon the idea of blowing up the rock altogether? Lieutenant Durnford, of the *Vernon*, would do the business without a doubt. The Eddystone Lighthouse is not a necessity of the age, and even Sir John Lubbock would not think of including it in his Ancient Monuments Act. Temple Bar was levelled to the earth last week. No one is sorrowful; and there is not a mariner, ancient or otherwise, who would shed a tear if the Eddystone, thanks to dynamite, were removed from the charts because from the waters of the English Channel.

\* By Dr. John Tothunter. Being the fifth of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.



## THE GRAY MEMORIAL.

THIS statue, which has been erected in a very prominent site in Lower Sackville-street, half way between Nelson's Pillar and Carlisle Bridge, was unveiled on the 24th ult., by Archbishop MacHale, in presence of a large assemblage of professional, municipal, clerical, and other personages. As a work of art it is worthy of the sculptor, Mr. Thomas Farrell, R.H.A. It is of a white Sicilian marble—pedestal and figure being of the same material. The entire height is 26 ft.—the figure being 11 ft. and the pedestal 15 ft. It bears the following inscription:—"Erected by public subscription to Sir John Gray, Knt., M.D., J.P., proprietor of the *Freeman's Journal*, M.P. for Kilkenny City, Chairman of the Dublin Corporation Waterworks Committee 1853 to 1875, during which period pre-eminently by his exertions the Vartry water supply was introduced to the city and suburbs. Born July 13th, 1815; died April 8th, 1875." The memorial was signalled by several addresses, and in the evening a dinner followed, when a large number sat down on the invitation of Mr. E. Dwyer Gray, M.P., who presided.

## ENNIS WATERWORKS.

THE contractor for the Ennis Waterworks (Mr. J. Cunningham, Dalkey) has commenced operations, and has a large staff of men employed. The works consist of a storage and service reservoir, laying of pipes, valves, hydrants, &c. The storage reservoir is situated at a distance of five miles from the town of Ennis, and will have a storage capacity of 20,000,000 gallons, equal to 100 days' supply at the rate of 30 gallons per head per day of the population of the town. The service reservoir is situated close to the town, and will contain 3 days' supply. The main pipe from the storage to the service reservoir is 6 in. diameter, and from the service reservoir to the centre of the town 7 in. diameter. The level of water in the service reservoir will be 110 ft. above the highest point in the town. The works were designed by Mr. Francis O'Connor, C.E., Ennis, and are being carried out under his superintendence. The cost, including purchase of land, &c., will be £11,000.

## PUBLIC WORKS IN IRELAND.

THE Forty-seventh Report of the Commissioners of Public Works in Ireland, issued a few days ago, has been expedited in its preparation and publication, being some weeks in advance of previous annual reports. This is an improvement and public advantage worthy of acknowledgment. The present report has, however, reached our hands too late to notice it in detail in our current issue. It contains, as usual, a large mass of useful information, facts and figures, concerning the several services entrusted to the management of the Irish Board *re* loans for works of public utility, the erection and maintainance of public buildings, landed property improvement, agricultural and artisans' dwellings, drainage, harbour works, inland navigation, and sundry other services. In our next and succeeding issues we will pass under review the more important of the above services, and particularly the reports in the Appendices B, C, and E. There are some features connected with the reports in one or more of the appendices this year that deserve consideration. Indeed the Chief Engineer's Report, and the Inspectors' Annual Reports on Landed Property Improvement, are suggestive and instructive.

The Report of the Superintendent of National Monuments and Ecclesiastical Ruins is also suggestive of some passing remarks beyond a mere notice of the work done and reported upon. If space and time permit, the subject of our national monuments and their preservation may entice us a little further afield than on former occasions, either in connection with or apart from the above report.

## THE ROYAL IRISH ACADEMY.

A MEETING of the Academy was held on the 23rd ult., under the presidency of Sir Robert Kane. The papers read were:—"A Note on the Meteors of the first Comet of 1870," by Mr. John Dreyer; "On a Passage in the *Confessio Patricii*," by Sir Samuel Ferguson; "Report of Experiments and Researches in Micro-Photography," by Mr. George Porte; and "A Contribution to the Nerve Action in connection with the Sense of Taste," by Dr. Sigerson.

It was resolved to allocate £50 to a committee consisting of Mr. G. H. Kinahan, Mr. Ussher, and Mr. Leith Adams, for the purpose of exploring the Cappagh Cave, near Dungarvan; £15 to Professor J. Emerson Reynolds for the purchase of a quantity of sulpho-urea to make experiments on the comparative actions of the isomeric bodies, sulpho-cyanite of ammonium, and the sulpho-urea on the growth of certain plants; and £50 to Messrs. Kinahan and Baily for the purpose of investigating the fossils and igneous rocks of the Curlew and Fintona beds.

Professor J. P. O'Reilly presented to the Academy a set of eleven maps, by Florentino Alveno Seccho, dated 1600, giving amongst others a map of the centre of Africa, with the recent discoveries of the sources of the Nile and the course of the River Congo.

## HEREDITARY ARCHITECTS.

Mr. Wyatt Papworth has printed (for private circulation) a little book, giving some account of the professional life of his father, the late J. B. Papworth. The profession of "builder and architect" appears to have been a hereditary one in the family, at least for some generations. Ireland affords another remarkable instance of a similar transmission of a profession from father to son, in the persons of the Morrisons—Sir Richard, who died in 1849, being the great grandson of a builder or architect, and Sir Richard's son, William Vitruvius Morrison, who pre-deceased his father, being also a distinguished architect. John Papworth, the father of J. B. Papworth, was born in 1750, and the latter, the subject of his son's little work, had two other brothers who also were architects—the elder Thomas, and George, who settled in Ireland. Many of our old Dublin readers must remember George Papworth, who lived for long years in this city, and had a very extensive practice. He is known as the architect of the Carmelite Church, Whitefriar-street, and the Dublin Library, D'Olier-street. He also designed many private buildings in town and country. Between forty and fifty years ago George Papworth had already made a name in the city, and could count among his friends brother professionals and distinguished antiquaries and artists of note now many years dead. His old residence in Marlborough-street, near the quay end, we witnessed with regret converted into tenements, and afterwards into what it is now, a sort of commercial hotel. The old house in Marlborough-street has not known the architect for many years, yet George Papworth should not be forgotten as a Dublin practising architect of merit.

Our brief remarks are suggested by a notice in a contemporary of Mr. Wyatt Papworth's book anent his father and family. We have not seen a copy of the work, so we are unaware whether it contains any detailed notice of George Papworth, mentioned above. The title of the little book is, "John B. Papworth, Architect to the King of Wurtemberg: a Brief Record of his Life and Works; being a Contribution to the History of Art and Architecture during the period 1775-1847." The grandfather of J. B. Papworth came from Huntingdonshire, the native place of the family, to London; so Mr. Wyatt Papworth, the author of the memoir, is the son of his subject, and nephew of George Papworth, who practised in Dublin. Exactly 120 years have elapsed since the birth of the first

member of the Papworth family who took to the architectural profession. J. B. Papworth was a literary architect, and wrote some respectable works, which are still of value, and deserve a place in all architects' libraries; and Mr. Wyatt Papworth is no undistinguished literary and professional representative of his family.

## DEFECTS IN THE SYNOD HALL, ST. MICHAEL'S HILL.

It would appear that the internal arrangements of the new Synod Hall (of which, as our readers will remember, Mr. George Edmund Street was the architect) have never been satisfactory since its erection. At the sitting of the General Synod on Thursday last, the Archdeacon of Meath brought forward a proposition that the internal arrangements of the building should be modified in such a manner as to render it more suitable for the purposes for which it was intended, and that the re-arrangement of it should be intrusted to the Finance Committee. As all were aware, the hall was at present very unsuitable for the purposes of debate, was *very ill-ventilated*, and was *badly constructed* both for the purposes of hearing and of admitting of their debates being satisfactorily reported. In fact, the reporters only heard speakers with the greatest difficulty, and members who spoke from under the gallery were quite inaudible. What was proposed was a re-arrangement of the benches, placing the bishops' platform at the upper end of the hall, and devoting their present platform to another purpose. This would admit of anyone seeing at a glance whether the House was in session or in committee—and that was a most important consideration, for at present there was nothing to shew a difference between the two circumstances.

Mr. R. L. Hamilton suggested that the motion should be for a committee to report, and not that they should hand over the hall to be altered, without their knowing what was about to be done. The fact that certain speeches were not heard, and consequently not reported, was no cause for sorrow; on the contrary, the public might be congratulated that the fact was so.

The Lord Bishop of Down said members would look very shy if they never saw their names in the papers the day after they spoke. No one could doubt that the present state of the hall was bad—he never met one whose experience was the other way, and what had been proposed was to assimilate the building, as they had their rules and orders, to the House of Commons. They would place the bishops' platform at the upper end of the hall, and arrange the benches from that point whence speakers could be best heard. They would ask the reporters to succeed the bishops by taking possession of their present platform. They (the reporters) would not have apostolic succession, but they would be in a better position to discharge their duties. The appointment of a committee, as Mr. Hamilton suggested, would cause great delay.

[The abrupt closing of the Synod's third session has for the present left the proposed alteration in abeyance.—Ed. I.B.]

AUDIT IN THE QUEEN'S COUNTY.—M. Finlay, the Government Auditor, has recently visited Maryborough for the purpose of auditing the public accounts, including those of the District Lunatic Asylum, the Maryborough Town Commissioners, and the Grand Jury Expenditure for Queen's County. The auditor's report of the asylum accounts was, as usual, most favourable. In the investigation of the Town Commissioners' accounts a sum of £30, which had been advanced by the Commissioners to Mr. George Vanston for the carrying out of a street flagging contract, was surcharged to the three Commissioners who had signed the cheque. In the Grand Jury accounts a sum of £15, which had been allowed to the sub-sheriff for the summoning of jurors, and of £10, allowed to the secretary of the Grand Jury for posting notices, were objected to by the auditor.



## MINING IN CORK.

MINING enterprise in Ireland, especially in Cork, has, for some years back, shared the depression which resulted from an unfortunate political excitement, although there is no district in the kingdom which has produced so much mineral with such a limited scale of operations; the extraordinary copper vein at Colleras in West Cork was closed (just as its immense wealth was being developed) by the independent action of the proprietor, Isaac Deane Notter, Esq., who would not stoop to absurd demands on his purse or domain. An old and valuable property on the same vein or lode, but eastward at Schull (a corruption of School) harbour, in the township of Cosheen,\* is about being re-opened by the accomplished veteran and, of course, experienced mining engineer and mineralogist, Captain William Thomas, M.E. and C.E., of St. Just, in Cornwall. This property was well known to the father of Mr. S. C. Hall, F.R.S., the eminent author and biographer of Tommy Moore; and Sir Robert Kane made special mention of it in his "Industrial Resources of Ireland." But in addition to the injury received by the patriotic (?) attempts of some to improve the prosperity of their country, a great blow was given by the publication of geological maps, in which the district was coloured as if composed of sandstone, in which it would be useless to look for the carbonates of copper, sulphates of iron, baryta, or other valuable mineral. If this colouring had been accompanied by a note or explanation of the fact that the geologists had an idea that the slate was an outcrop of the sandstone, or that they failed to ascertain the exact nature of the carboniferous series of slates and killas (or *grauwacke*, as the Germans call it), and that roofing or clay slate largely abounded in the district, so much injury might not have resulted, and the colouring would have been taken as the result of a mere vexed question or argument over a technical glass of gin hot in some friendly tap in the Strand, or perhaps Jermyn-street.

But when we consider that neither the elvans, granites, diorites, or porphyries of the district are shown, we must say that great and undeserved injury is done to the locality by these maps, which are largely and eagerly consulted by promoters and speculators in London. We would be sorry to hint that this erroneous colouring were other than the fault of over-strained theory. A friend said to the writer, when remonstrating on the subject, "Oh, you want petrology and not geology?" We said: "We want whatever will show best the resources of the neighbourhood; a working man would not call the Yorkshire flags under Schull Church, slates; but that is the only part of the map you have not coloured as sandstone; the diorite of Schull is a better paving stone for Cork or Dublin than the diorite of Wales, but you show no indication of its being there in such valuable quantities."

The speculators of London, and the wealthy men of England, are not without good practical advisers; these men know where to look for the likely places where valuable mineral deposits occur; but if they miss from the Government maps the indication which would exist of greenstone protrusions, elvans, porphyries, &c., &c., were mineral to be had, who can blame them if they prefer to advise the seeking in some distant land the dividends denied them at home?

Statements have been volunteered that the copper was merely a surface deposit, washed down from—perhaps the clouds; it would be difficult to say where else. The only portion of the West of Cork that got fair play was Allihies, better known as the Berehaven Mines (although many miles from Berehaven); the copper there was most inferior yellow carbonate, but the quantity found balanced the quality. In Cosheen, on the contrary, the green carbonate, popularly known as Malachite, has been got in cart-loads, and the writer has some most ex-

quisite specimens auriferous and superior to the ore of Siberia.

At Colleras, outside the town of Goleen, there are no surface indications; the ore is to be seen pure and simple in blocks in a tunnel or natural adit or cave running in from the sea at a great depth at low water, and, in fact, all through West Cork, like the coal mines of Ballycastle in Antrim; the correct way to attempt mining operations is by adits, and deep sinking is certain to be ultimately productive.

Mr. Warrington W. Smyth, F.R.S., &c., writing some years since on the mines at Allihies, in his most valuable notes described the rocks as "slaty rocks," the "killas" of the miners, and "inter-stratified massive beds," "dark blue varieties of clay slate," with gray and blue kinds of same, a mass of "slaty and grit rocks;" but nowhere does he describe them as *old red sandstone*; and as a practical man and authority, his opinion was far before the tyros of the Geological Survey of that date, however they may have improved since, or whatever hints they may have had from head quarters.

Every miner knows that "old red sandstone" is generally a rock barren in "mineral ores," and hence the injury done to the character of Cork as a mining country, by the publication of geological maps coloured to show the existence of that rock. We were most disappointed when about to build extensively in West Cork, in 1862, to find that there was little or no red sandstone, practically, in a district coloured for miles as such, theoretically. However, the company, in again placing their property at Schull Harbour in the hands of Captain Thomas, have exhibited not only a confidence in his well-known skill, but a proper contempt for the puerile efforts of a government to damage one portion of a kingdom for the advantage of another. Mr. John Kelly, F.G.S., writing in the *Atlantis* in January, 1859, makes this pithy remark, speaking of the geological colouring of the government survey:—"There is a long narrow district of old red sandstone shown on the map. . . . Two of the highest hills in south of Cork are situated in it, that is Carrickfadda and Mount Gabriel. The geologist who goes up Carrickfadda hill to see this old red sandstone will be surprised to find none there. The rocks are all gray, hard, thick-bedded grit, with a few bands of gray clay slate;" and were evidence wanting of this stupid attempt to do an injury to poor Ireland, an immense mass could be forthcoming, but it is not requisite. The gentleman whose name we have mentioned as being employed by the company is above all mere *sapper and miner* influence; his experience at the Condurrow and Wheal Greville Mines of Cornwall, in many parts of England and Wales and the Isle of Man, and as a consulting mining authority in every part of Ireland, places the matter beyond the mere accidents of official flunkysim. J. S. S.

## NATIONAL WATER SUPPLY, SEWAGE, AND HEALTH.

In the recent conference at the Society of Arts on the above subject, several important papers were read and discussions ensued. We were unable to devote space to the reproduction of the papers, though we were highly sensible of their value; but the Journal of the Society has published very good though abridged reports of the discussions already, and the papers are promised. Although the latter mostly appertain to the sister kingdom, the principles involved with their results are generally applicable to cities and towns throughout the British Islands. Among the papers at the second day's conference that led to discussions were: Dr. Thorne's on "The Recent Outbreak of Enteric Fever at Caterham;" Mr. Ernest Hart's "Epidemics Produced by Water Supply;" Mr. Cresswell's "The Thames and its Tributaries;" Mr. Chadwick's "Course of Inquiry as to Works of Sanitation, and as to their Expense and

Results;" Mr. Baldwin Latham's "Works of Sewage and Sewage Disposal;" Lieutenant-Colonel Jones's "Sewage Disposal at Wrexham;" Mr. Henry Master's "Double Cbeck System of House Drainage;" Dr. Seaton's "On the Substitution of the Pail System for the Privy Midden System in Nottingham, and its effects in reducing the Mortality and Sickness from Enteric and Continued Fevers." During the discussions several of the speakers gave their experience, and kindred evidence of a very useful and practical character was given. The chairman of the conference, the Right Hon. James Stansfield, in closing the discussions, gave an able summary of the proceedings, which we herewith give in lieu of the details:—

The chairman said he hoped now he might be allowed to bring the proceedings to a close. The first question which occurred was how the previous conference compared with the present, and would the result of the present afford a sufficient inducement to gentlemen to reassemble next year. In that respect he thought he might congratulate the meeting. They had enlarged the subject matters of inquiry, and if some portion of the vast and complex subject had rather been put in the shade, it was simply from want of time to fully discuss every point. He referred especially to the subject in the paper of Dr. Seaton. This conference had shown such a special interest in this subject that he regretted it was not taken earlier, but probably the council of this society were led to place it rather late in order of subjects because it had been discussed upon many previous occasions, and the conference had already passed resolutions on the subject to which he would draw attention. In 1876 and 1877 the following resolutions were passed:—

1876.

That the protection of public health from typhoid and other diseases, demand that an amending Act of Parliament be passed, as soon as possible, to secure all house drains connected with public sewers in the metropolis, and towns having an urban authority, should be placed under the inspection and control of local sanitary authorities, who shall be bound to see to the effective construction and due maintenance of all such house drains, pipes, and connections. Provisions having this object in view already exist in the Act constituting the Commissioners of Sewers in the city of London, in the Metropolis Local Management Act, 1855, and in the Public Health Act, 1875, but practically they seem scarcely sufficient for the purpose.

1877.

1. That the pail system, under proper regulations for early and frequent removal, is greatly superior to all privies, cesspools, ashpits, and middens, and possesses many manifold advantages in regard to health and cleanliness, whilst its results in economy and utilisation often compare favourably with those of water-carried sewage.

2. That hitherto no mode of utilising the excreta has been brought into operation which repays the cost of collection.

3. That the almost universal practice of mixing ashes with the pail products, though it applies these as a convenient absorbent, and possibly to some extent as a deodorant, is injurious to the value of the excreta as manure.

4. That, for use within the house, no system has been found in practice to take the place of the water-closet.

5. That, although there are appliances and arrangements by means of which the sewer-gases may be effectually prevented from entering houses, they still do so in the great majority of dwellings, both in town and country, including the metropolis.

6. That it is of the highest importance, in a sanitary point of view, that the metropolitan and local authorities should exercise great vigilance with respect to this matter, and that it should be made by law the duty of these bodies to enforce sufficient measures for the exclusion of sewer-gases from dwellings, and to watch over their being efficiently carried out under such a system of payment as shall not press too heavily on those at whose charge the work is done.

7. That in every large town plans of its drainage should be deposited with the local authorities, and be accessible to the public.

8. That all middens, privies, and cesspools in towns should be abolished by law, due regard in point of time being had to the condition of each locality.

He took it, therefore, that this conference, not only this year, but in previous years, had always

\* "Little Cave" or "Cove."—Joyce.



been of opinion that privies and middens ought to be abolished within a reasonable time, and that the pail system was a vast improvement on those old methods of dealing with excreta. They had not exhausted, and probably had not had sufficient experience to exhaust, the question of the comparative cost of the pail system, which was a very interesting subject of inquiry from the point of view of those especially who believed in the system as one calculated to prevent the spread of disease, and who desired to know the cost of its application to the towns in which they were interested. They had had figures from time to time on the subject, and he would venture to suggest that, next year, their friends at Rochdale, who had been improving and completing their machinery, should come prepared with a special statement of the cost as compared with other methods of dealing with sewage, with the object, not merely of showing what they had done, but of informing the representatives of other towns on the subject, and of enabling them to judge how far the pail system could be applied to other communities, and at what comparative cost. He had always felt, and had said on former occasions, that at any rate the pail system was efficacious. You dealt with the evil at its source, and in some respects before its source—at any rate before the source of that great evil of modern times, sewer gas. If you dealt with excreta in the house itself, however troublesome and expensive it might be, compared with some other system, you dealt effectively with it from a sanitary point of view. There was also another advantage. It might be a costly system if you took the cost per head of the population, but, at any rate, you had this advantage, you were not sinking money which might be mistakenly sunk in large works, which might turn out to be constructed on some wrong principle, or which, even if they freed you from the source of evil, might carry it to your neighbours. Therefore, he said, that in the present state of knowledge as to the methods of purifying sewage conveyed by water, unless you had a large and dense population and some easy opportunity of an outfall, it might very well be the least costly method, in the long run, to be contented for the present with the pail system. However, he did not think it was a subject on which the conference would like to arrive at a resolution at present, but he hoped their friends at Rochdale would bring further details as to cost next year. During these two days there had been a great variety of interesting papers and discussions, and certain resolutions had also been passed. The first day was appropriated to discussion of the great question of National Water Supply, on which a resolution was passed, and it was determined, after considerable discussion, that the meeting would adhere to the policy taken up by the council and the conference last year, and throw on the government of the day the onus and responsibility of dealing with the question by a Royal Commission of Inquiry. He did not know what the probabilities of action were by the government; if they acceded to the request of the council, conveyed by the Prince of Wales, then they had reason to believe that the whole subject would be investigated by the most competent scientific knowledge, and certainly no scientific men connected with this subject would be otherwise than satisfied by the subject being dealt with, explored, and explained by such a machinery as that. If the government did not accede to the request, then he thought that the Society of Arts should take some action, without waiting for next year's conference, and he hoped they would allow him, as chairman, in such a case, to press on the society the necessity of taking some immediate action on the subject. Then came the exceedingly interesting papers of Dr. Thorne and Mr. Ernest Hart, and the contribution to the same subject in the speech of Mr. Baldwin Latham. Dr. Thorne's paper was very interesting to him in more ways than one. It was interesting to all, because of its ability, lucidity, and the remarkable characteristics of the case. It was precisely a case—simply explained as he explained it—calculated to convey to the public mind the ways by which scientific men could trace the evil to its source, and the use to society of the application of such methods of scientific investigation. But it was interesting to him from another point of view. As an ex-president of the Local Government Board, he was delighted that the medical department of that board had an opportunity before the conference of presenting itself in an aspect so favourable to all who were interested in sanitation. It was fulfilling precisely the true functions of the medical department of that board to undertake to conduct such inquiries, as that department was a scientific one, and its duty was to conduct investigations which other persons might not be equally able to conduct, which served to guide local government boards throughout the country, and these results were published in the annual reports of the Local Government Board,

and thus were generally accessible. On that matter a resolution was passed, of which the meeting would have no cause to repent. The temptations had been avoided of pronouncing as a mixed body on a purely scientific question; they had eliminated all that was purely scientific out of the proposal with which Dr. Thorne's paper concluded, and passed a resolution which he thought they were justified as practical men on the evidence before them in arriving at. Then he came to the paper of Sir Henry Cole, who first referred to a suggestion of his own in a former year, that in a public department like the Local Government Board, there ought to be an inquiry office. They had not constituted one, and Sir Henry Cole thought the Society of Arts should do so. He should be delighted if the society could see its way to establish an inquiry office on this subject, but the difficulty which they could all easily understand was one of ways and means. It meant a room devoted to the purpose and one or two persons, one of whom at least should be highly qualified, and both of whom should be paid for rendering a service which would be necessary to the regular conduct of a department of that description. He was not sure that it would be within the means of the society to undertake such an experiment, or whether Sir Henry Cole made the suggestion with any knowledge as to the intentions of the society. He limited himself to the expression of opinion that it was a fit thing for the Local Government Department to undertake, and that if it were to do so, it would add very much to the smooth working of their own department, and to the progress of sanitation throughout the country. Then Sir Henry Cole passed on to another subject, and referred to the very interesting letter of the Duke of Sutherland to Mr. Selater-Booth, who proposed federation of local authorities. The existing law provided for that federation as far as it could do so in the original Local Government Act, which gave power for local sanitary districts to combine in aggregate areas for some common purpose, by provisional orders requiring confirmation by Parliament. The reason why he had inserted that provision, was this. He did not say to himself that it would have a great practical effect, because you did not easily get twelve or twenty local authorities to combine and pass a provisional order through Parliament, but it seemed to him to lay down a principle which might have practical results, and would at any rate have some result in further legislation at a future time. What that result ought to be he would not say at present. Then he came to Mr. Cresswell's interesting paper, and the resolution passed thereon. Mr. Cresswell's paper was upon the general subject of the impure condition of the River Thames, with special reference to that part of it with which he himself was most familiar. In that resolution, again, he thought they had gone as far as it was advisable for such a conference to go, and that the further responsibility ought to be left with the government of the day. Now, to go back to two matters on which he had already touched, the first of which was that of National Water Supply, on which he hoped a Commission would be appointed, and the second was the proposal of the Duke of Sutherland for the federation of local authorities for the purpose of dealing with questions of the prevention of river pollution. Both of those subjects were connected with this general consideration—the necessity for making provision, for many purposes, for larger areas of government than those which already existed. As far as the supply of water was concerned, the tendency of the scientific mind was towards water-shed areas and authorities, and he found no fault with that as a scientific view. As far as the view raised by the Duke of Sutherland was concerned, he supposed the view was simply this, that you could not conserve the purity of certain rivers without, at any rate, very much enlarging the area within which you carried out measures for their preservation. But he had another point of view to which he should like to direct attention, not for the first time. He had often said that after all this question was not a mere question of health but of local government, and he said that in the interests of health as well as in the interests of local government. In questions of health you could not drive the country, but you could lead it, and you could only lead the country through representative institutions of some kind. You could educate the representatives whom those institutions brought into public action, and what he desired was this, that in a proposal of this kind, from a scientific point of view, you should not forget what he called the local government point of view; and, collating those two ideas, he was continually reminded of the importance, which he, for one, had never forgotten, of passing a measure for the formation of county boards. That scheme for county boards was one propounded during the time of Mr. Gladstone's government, some six years ago, and by himself as

the member of that government charged with the subject. It had been dealt with by his successor in the Local Government Board, and by various persons in the House of Commons, but it had never gone further than the second reading, if so far. There was a great difficulty in the way, so far as the House of Commons was concerned, that there was a great objection, on the part of many people, to the construction of boards, which they thought might not end in economy, but in additional expenditure. He was not prepared to say that they would not end in additional expenditure, but he had often used this language, that although saving was profitable, profitable expenditure was more profitable than mere saving. If you had boards rightly constructed for large areas endowed with considerable powers, so that you might hope to attract the best men of the locality to serve on them, although you might get an increased expenditure, you would get a greater return in the shape of greater convenience, comfort, and happiness, and health of the population concerned. With regard to the question of water supply, he would not lay down any hard and fast rule or line. He did not say that the county board of the future was to be the authority for the conservancy of all the rivers within the county; it might be advisable to enlarge the area of the conservancy and the prevention of pollution. All that he would say would be this, bear in mind that you have to construct these county boards, and endeavour to harmonise their future with this idea of the future conservancy of rivers, and this might be done with the most perfect ease. If it were necessary to combine one or more counties for the purpose of forming a water-shed area, you had only to make it a combined authority, instead of setting up one *de novo*, and he did not believe that the difficulties would be at all serious, and, at any rate, adhering to this view, you ought not to cross the county lines in the construction of any one of these water-shed authorities. They had had experience of crossing boundary lines, and the multiplex combination of sanitary areas, and had endeavoured, by legislation, to reduce the number of those areas, and simplify them; and he trusted in future, as they had of late, they would endeavour to adhere to this very simple rule, which he did not think would be found impossible of application. They should start with the administrative unit, the simplest area you had in the country, the local government area, the urban or rural sanitary district. That was an area for certain purposes of local government. He desired that it should not be too small, but when you wanted a larger area for some common purpose, the simple role in his own mind was to have an aggregate of those smaller areas, never to divide them. You might meet with some difficulties but depend upon it, for the sake of simplicity, in the long run, it would be better to meet them at first. If you once laid down the principle, the thing became very simple. You had these units of administrative area, and for purposes in which you required large areas you formed an aggregate of those units, it might be one county or two counties. The meeting to day had been rather long, but he hoped not uninteresting or unimportant. He hoped the meeting would agree with him that this conference might compare favourably with those of past years, and that gentlemen would be willing to come again next year, and again take up this useful and necessary public work.

#### HOUSE REGISTRATION.

Pendant to the above, and since the close of the conference, a correspondence has taken place between the Right Hon. James Stansfield, M.P., and Mr. C. N. Cresswell, Barrister-at-Law. Being laid before the Committee of the Sanitary Section of the Council of the Society of Arts, it was resolved to publish it. It deals with a subject, and a very important one, more than once ventilated in these columns—a system of house registration. Mr. Cresswell thus writes:—

1 Hare-court, Temple, May 21st, 1879.

DEAR MR. STANSFIELD.—In pursuance of our conversation at the close of the National Health and Sewage Conference, I take the liberty of communicating to you in further detail the nature and objects of the proposed organisation.

The Sanitary Section of the Council of the Society of Arts is at present occupied with the investigation of facts, and the collation of statistics bearing upon the sanitary condition of houses in the metropolis and suburbs; and, with the object of utilising the array of scientific data presented to them, I propose to organise, with the sanction of the council, a new department, which, for lack of a better title, I will call the "Sanitary Inspection and Classification Department."

The public have sufficient confidence in the



society to give ear to any practical suggestions emanating from its council; but, whatever may be the intrinsic merits of my idea, I am well aware that it cannot be reduced to practice without the co-operation of architects, building-owners, contractors, surveyors, and sanitary engineers; and it will be indispensable to enlist their interest, moral and material, in the cause.

The *modus operandi* proposed is analogous to that pursued by the classification department of "Lloyds," viz., by granting certificates in different categories, as 100 A 1, 50 A 1, A 1 in red, B, and so forth, according to the mode of construction and seaworthiness of the vessel, as certified by surveyors, whilst upon the stocks, or undergoing repair.

In like manner, surveyors would be appointed in the metropolis and provinces for the purpose of inspecting and supervising the sanitary condition of houses, both during construction and repair, and certificates would be granted according to the degree of sanitary completeness attained.

The conditions and degree of classification would be determined by a code of sanitary regulations, to be framed by our committee, and formally sanctioned by a conference of architects, sanitary engineers, and contractors, to be convened by the society for that special purpose.

By this means we should conciliate the objections of householders, and command the acquiescence of speculative builders.

Just as a ship is reputed, upon the certificate of "Lloyds," to be seaworthy for a term of years, so would the houses of rich and poor be certified as healthworthy and fit for habitation, and this at a relatively small expense, which the increased repute of the houses certified, and the good sense of the public in selecting the good from the bad, would speedily recoup.

It is, of course, intended that the institution should be self-supporting by means of fees to be paid both for inspection during construction or repair, and upon delivery of the certificates of classification, which certificates would be title-deeds, to be preserved with other muniments, and an assurance to the purchaser or lessee of the sanitary fitness of the premises for habitation.

There are at present but few mansions in the metropolis whose sanitary condition will entitle them to an A 1 certificate. Thousands of them are defective in respect of drainage, ventilation, water storage, and other sanitary appliances, and in many conspicuous instances a large expenditure has been necessitated in order to render them habitable, a state of things which the organisation here foreshadowed would in process of time effectually remedy. After the first outlay for efficient sanitary equipment, the fees payable on registration and the cost of subsequent supervision will be inconsiderable.

To elaborate details and organise the department will require time, skill, and labour; moreover, there will be need of tact and patience, in order to overcome the repugnance of some and the inertia of others. I am, however, not dismayed by the prospect of obstacles to be overcome, if I may rely upon the support of a few earnest men, having weight and authority in the kingdom, in whose ranks I venture to include your name, as the president of our annual conferences, and the tried friend of sanitary progress.

In conclusion, I would observe that the proposed supervision of the society will be confined to sanitary equipment and appliances only, the method and details of construction in other respects being regulated by the provisions of the several Metropolitan Building Acts.

Mr. Stansfield briefly replies:—

Stoke-lodge, Hyde-park-gate, W.,  
May 22nd, 1879.

DEAR MR. CRESSWELL, — Your idea seems to me extremely well worth thrashing out with competent persons.

My feeling is that it is too big for the Society of Arts to take up, without first sounding a few picked men amongst architects, sanitary engineers, surveyors, and builders, resulting, possibly, in a select conference on the subject.

I am not sanguine, but I think the idea is good, and that it could not but do good to "ventilate" it.

**THE BRISTOL BUILDERS AND WORKMEN.**—The Bristol master builders issued on the 21st ult., a notice to the effect that, as the masons and carpenters on strike had refused the offer of arbitration, the employers had determined to fill their shops with non-union workmen from distant towns; and at a meeting which the employers held a considerable sum of money was subscribed for this purpose. On the other hand, the workmen have issued warnings to all masons to keep away from the city during the strike.

## CHURCH OF OUR LADY OF THE ASSUMPTION, MAGHERAFELT.

THE church, which we illustrate in this issue, is in course of erection at Magherafelt, County Londonderry, from the designs of Messrs. O'Neill and Byrne, of Dublin and Belfast. The material employed for the walling is freestone, with dressings of same material. The spire rises to a height of 160 ft. The nave measures 112 ft. by 56 ft., the arcade of which is supported by pillars of polished granite, with carved capitals. The ceiling of nave is boarded and panelled. Mr. Matthew McClelland, of Derry, is the contractor.

## CORRESPONDENCE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Will you afford me a corner to quote the following footnote to an article on "The New Canal," in the *Builder* of the 21st?—"In the meeting of the French Academy of Sciences, on June 9th, Sir John Stokes was elected member of the Section of Physics, by 44 votes to 4 given to Professor Tyndall." Although Sterne said in 1762, "they order this matter better in France," it does not appear that in 1879 they are able to evolve from a protoplasm of four votes a member for their Academy of Sciences! This is to be deplored, and I can almost weep at the misadventure of a brother scientist, and hope that "Aranmore" was not the indirect cause. I had always my doubts as to the expediency of examining French lenses through *English spectacles*.

J. S. SLOANE.

Dublin, June, 1879.

## BRICKS IN PUBLIC WORKS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Can you inform me what test is applied to bricks before being selected for public works? I lately inspected bricks in use under a certain Government department, and though they were well burned and hard bricks enough, on examining them closely I found them to contain a very large proportion of silicate of lime, a mineral which is formed during the process of burning, but which gives a highly dangerous character to the brick, and is not to be detected in this form by an ordinary chemical analysis. On following up my enquiries, I found that the most unfortunate results had actually followed from the use of bricks from the same manufactory in several buildings where they had been used, and where they were rapidly decomposing and breaking up. They look well at first, but the life of such a brick I find from experience to be about three years or less only!

AN ARCHITECT.

[We cannot at present afford our correspondent the information he seeks. We had always been under the impression that all public departments had skilled surveyors and clerks of works, who should be expected to take cognisance of all materials used in their buildings. As a matter of courtesy we print his letter as above, in the hope that some of our readers may take up the subject.—Ed. I. B.]

## SUPPLY OF GAS WITH AN UNDUE PRESSURE.

THE letter which we print below was addressed to the members of the Corporation, and its receipt barely acknowledged at a special meeting called for Friday last to consider the propriety of petitioning Parliament to making certain alterations in a bill promoted by the Gas Company, seeking to secure a monopoly of the electric light when such could be made available for public lighting. In our opinion the subject of the gas supply to the city and suburbs demands a searching and immediate inquiry:—

To the Lord Mayor, Aldermen, &c., of the City of Dublin.

Being aware of your intention to meet in council on Friday next for the purpose of adopting a petition to Parliament praying for the rejection of certain clauses in the Gas Company's bill, and as some considerable time may elapse before electric light can cheaply supersede gas, I respectfully beg to bring under the notice of your honourable Corporation the necessity of also having a clause inserted in that bill, prohibiting the Gas Company from distributing gas for public and private lighting in the city under any such excessive pressure as has been used during these five years past. From the reports in the public journals I have learned that the excessive pressure on the gas has been made the subject of inquiry by one of your committees, and that the information elicited went to prove that great loss to the private consumers in the city resulted from it, but justified the necessity of such loss on the grounds that when the gas supply reached the townships the pressure on it averaging 2½-in. became almost exhausted, and was barely sufficient for a proper supply to the consumers therein. I believe that your committee were also informed that this excessive pressure caused no loss in the public lighting.

The above justification of the excessive pressure on the gas distributed through the city may appear to a city ratepayer as being most ridiculous, but I assert that the information given to your committee was not as truthful as it might have been. In 1871-'2 there were upwards of 3,300 public lamps in Dublin, consuming 4 cubic feet of gas each per hour, and in letters published in *Saunders's News-Letter* of the 7th and 11th January, 1873, Mr. Cotton, then Inspector of Public Lighting, stated that the average pressure on the gas in the heart of the city did not exceed eight tenths, and that the quantity of gas consumed per annum in the public lamps was 31,000,000. The public lamps at present consume 4 cubic feet of gas per hour, and although they are extinguished much earlier every morning than they were in 1871-'2, I unhesitatingly state that the meters of 3,300 public lamps have for some time past indicated the annual transit of more than 31,000,000 cubic feet of gas. Again, in the first of these letters Mr. Cotton, while describing the amount of pressure in the townships, clearly shows that it then ranged from four to six tenths, thus proving that the pressure on the gas in its transit to the townships only decreases from two to four tenths. I, therefore, respectfully submit that an average pressure of 2½ in. on the city gas supply was not at all necessary to enable the inhabitants of Rathgar to have a proper supply of gas, but that if they required gas under an average pressure of over 2 in., the Gas Company should have supplied it through an independent main.

On every occasion when the price of gas was reduced during the past four years, the pressure on it has been increased. Since this year commenced, according to Mr. Tichborne's weekly reports, the average pressure was frequently as high as 2 in. and 8 tenths. That excessive pressure so acted on the wet meters in use, that consumers expecting to obtain the benefit of the three pence per thousand reduction made since the beginning of January in the price of gas, on getting their gas bills for the March quarter, found to their great surprise that the amounts greatly exceeded those of the March quarter, 1878.

In April, 1874, Mr. Fowles wrote a report on the condition of the Alliance and Consumers' Gas Works. At the conclusion of it he stated that a pressure of six and eight tenths of an inch was too low for the efficient supply of a large city like Dublin, and that it should be raised to ten tenths and eight tenths respectively. No person reading that recommendation could for a moment suppose that that eminent gas engineer ever contemplated that a pressure ranging from 2½ to 3½ in. would ever be put on the gas in Dublin. I, therefore, respectfully submit that your honourable Corporation will confer a great benefit on the city ratepayers, by effecting a proper regulation of the amount of pressure on the future gas supply in Dublin.

JAMES KIRBY.

25th June, 1879.

## HOME AND FOREIGN NOTES.

**BRAY TOWNSHIP.**—Mr. B. B. Stoney, Engineer to the Port and Docks Board, has reported on the plans for the construction of the harbour and the carrying out of the main drainage works of the township in the vicinity of the harbour. He states that the plans proposed to be carried out are not efficient to make the harbour anything like commodious and the main drainage works permanent; there should, he says, be an outlay of between £12,000 and £13,000.



## Illustration.

ADDITIONS TO BLACKHEATH, CLONTARF, 1870.

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## THE IRISH BUILDER.

VOL. XXI.—No. 470.

## THE PRESERVATION OF NATIONAL MONUMENTS.



HE literary antiquary of modern times paved the way for the topographer and artist-antiquary; then came the archæologist, who in his best development was an artist as well; and lastly came the architectural archæologist, who is at once an artist and an antiquary, an archæologist and an architect. We will not stop to analyse the developments or reconcile the differences that may exist in respect to these pursuits: sufficient for our purpose, we have at present architects who are good archæologists, and archæologists who are good artists, and possess a respectable knowledge of architectural details. Going back for a couple of centuries or more we find annalists, chroniclers, and historians in this and the sister kingdom doing valuable service in hunting up facts, collecting materials, and catching up and preserving the traditions of their country, county, or native town. Our old chroniclers or historians were not all mere narrators of political, religious, or municipal events. There were a good few scattered here and there over the British Islands who collected and recorded with a loving care all they could trace respecting the history of the prominent buildings of their time, or those that interested them and their contemporaries most, from their many associations.

Thus the literary antiquary of a bygone generation sowed the seeds of antiquarianism and archæology; but the mere ecclesiastical "restorer" of our day would make little acknowledgment of the labours of his predecessors, except where these labours squared with his own conceptions. The labours of our artist-antiquaries kindled a

love for our ancient buildings, and many enthusiastic and earnest students were led to the study of architectural styles, and their gradual historic development. Topographical writings and constant illustrations of our National Monuments and Ecclesiastical Ruins were powerful contributing causes leading to and hurrying on the advent of the Gothic Revival. Antiquaries and architects gave us books on Greek and Roman antiquities, while others followed suit at home. Periodical literature sprung up and expanded far and wide, and the rest was comparatively easy of accomplishment. Some men have already attempted to estimate the results of the Gothic Revival, but we fear that the estimate has been drawn up a little too soon, and that a faithful picture is not possible till this century closes, or is near closing. It is useful at the same time to have the opinions of those who took a leading part in the events of their time registered, before any serious or remarkable reaction has set in. That a reaction has been setting in in matters architectural and archæological, there can be no doubt; and it is difficult to say with certainty how far this reaction will affect the studies of architecture and archæology in the future, or elevate or depress the tastes in respect to one or both. Practice is a matter of moment to the architect, and he is not justified or called upon to allow mere sentiment to work an injury to his calling, or to interfere with his duty to himself, so long as his course is an honourable one. Architects are like other men, and as they are neither more nor less than human, they must be judged by a common-sense standard. As professional men they will favourably compare with those of any other profession. A lawyer accepts a good brief, a doctor will not refuse a call or a fee from a new patient, and as others act the architect acts by accepting a commission. The architect can often act of his own free will in designing or carrying out his works, and often again he is tied down by the whims of clients and committees, lay and clerical.

In the matter of architectural restoration, architects have often been unjustly censured, and the whole body condemned for the faults of the few. Some years ago certain works of restoration were applauded to the skies, none dissenting; but if some of these works were executed now, they would be certain to beget a combined criticism in which the character of the architect, as well as his professional knowledge, would perhaps be very doubtfully described, if not wantonly assailed. Changes in the public taste in matters of art are not uncommon in an ordinary lifetime. Just as fashions in dress are abandoned, other tastes are abandoned, and men will smile to-morrow at the follies of yesterday. In the region of pure art, or the principles that govern it, there has been, or should be, no change; but a vitiated public taste often for a time overpowers and presses down to earth what is right. The tide for a generation or two may prove too strong for the reformers, and in the meantime men must follow their professional pursuits, and so long as they live honestly by their legitimate practice, critics should be disposed to judge with reason, making fair allowances for the influences and surroundings of their time.

"Art is long and time is fleeting," truly, and no man or artist is wholly accountable for inherited imperfections or characteristics, nor should he be too sharply censured for clinging to views transmitted to him, and

once rigidly maintained by his immediate predecessors. Time, with the advanced and improved knowledge it brings, is the great purifier and perfecter, and at best men can but progress towards perfection without hoping to ever realise it. Having written so much by way of introduction—which may be considered apart in connection with our subject for what it is worth—we will proceed to glance at the open question of restoration, or the preservation of our ancient monuments or buildings. All are agreed that ancient buildings that are worthy of protection, from an architectural point of view, and credited as works of art—in a word, works that are truly representative of the best style of their era, should be preserved.

In the reaction against sweeping architectural restorers, or restorations carried out merely for sake of fashion for the attainment of certain aims and objects apart from what are termed the proper principles that should govern a restoration, a society now stands forward, claiming a representative character. Whether this organisation, which is now two years or more in existence, has had its claim acknowledged is more than we can say. The annual meeting of the Society for the Protection of Ancient Buildings was held not many days ago in London, and the chairman on the occasion, the Hon. Percy Wyndham, M.P., among other remarks, went on to say that the society "were now beginning to see what their aim ought to be, in order to give effect to the object they had in view—viz., the preservation of ancient buildings of this country. That aim ought to be no lower than that of altering the whole standpoint from which the public viewed the question of restoration, so that instead of, as at present, the burden of the proof resting with those who would defend an old building from restoration, it should rather lie with those who would interfere with it. The society was perfectly aware that restoration must take place, but they contended that where a building happened to contain work of different periods, it was going beyond restoration to level up or level down those portions of it which did not happen to be of the particular period which most commended itself to the predilections of the architect engaged." It is doubtful indeed if well-intentioned restorers, any more than sinister-minded ones, will feel themselves called upon to give all their reasons at a direct challenge on the part of those who are adverse to restoration except in a partial and particular way. We are certainly not among those who would like to see a building containing a combination of different styles, and each of them good specimens of their particular period, pulled to pieces to please the predilections of the restoring architect, whoever he might be. Who are to be the judges of what is the right course to adopt? Is the voice of a few churchmen or laymen in committee, with little knowledge of art, and less of architecture in its historical developments, to be accepted as the proper authority for deciding such a question? Rather, would not a small council of architects—men selected for knowledge and distinction in their profession—be the better class of referees? An equal number of architects and archæologists might arrive at a fair decision; or, better again perhaps (if there were no unworthy suspicions of favouritism), a few architects of repute who were also acknowledged archæologists.



*En passant*, we would at this point say that all our distinguished architects are more or less posted up in archæology, through its bearings upon the history of their profession. The rising architects of the future on the road to distinction will be archæologists as well as architects, for the history of architecture is the history of the past linking to the present, the rise and progress of civilisation and the arts, through which man was domesticated.

It is easy to raise a false issue, and it is not hard to procure a following. Shout loud enough, and a crowd is sure to collect. Shout long enough, and the crowd will grow greater; but half-a-dozen of well-armed and disciplined soldiers are sometimes sufficient to scatter the largest gathering of men, for at every point they are weak and vulnerable. A number of men or a society is only strong when its members can support their cause by facts, and the influence of any organisation is best shown by its outcome or results.

The Society for the Protection of Ancient Buildings has, during its yet short existence, done both good and harm. It commenced its labours by making a great amount of what we considered were assertions mixed with some truths. A little later on, however, the society performed some useful labour; and, doubtless, if continued and supported, and the work put before it is performed with judgment, the society will be entitled to public recognition and thanks. Our praise is qualified, and so is our blame, for we have observed all along a germ of good at the bottom of the organisation, which some hot-headed or unsteady-minded members within and outside supporters have done their best to destroy through their wild utterances. Mr. Leonard Courtney spoke of the efforts of the society to protect the city churches of London—the works of Sir Christopher Wren. Some of these churches are worthy of preservation, and we hope that no more of them will be demolished, though among them are some of a not very high order. The same speaker said “that one reason why the society objected to the work of architectural restorers was, that to restore an ancient building or part of a building by exactly copying in modern masonry the details of the old work, was to commit what in a picture or document would be a forgery.” There may be some degree of truth in the above assertion, but the analogy of the picture or document with the building does not run exactly on the same lines. The comparison, in our opinion, is not a good one, for viewing a building as a whole, and particularly a building made up of many additions and styles, it does not present itself as a fit subject for drawing a comparison between it and a picture or forged document. What are we to say of the architects or builders of the thirteenth century who copied in the masonry of their time the details of eleventh-century work; or of those of the fifteenth century who in their alterations and additions imitated thirteenth-century work, as well as adding that of the style in fashion in their respective periods? We hold that in all ages artists and workmen were prone to imitate what was good in the work of their predecessors, although doubtless they generally worked in the style of their time where it was imperatively necessary for them to do so when under the guidance of some guiding, governing, and directing mind.

The following resolution of the Society for

the Protection of Ancient Buildings is unobjectionable, but then the question arises how are we to preserve historical character and features for several centuries in stone without obliteration?—“That this meeting, recognising the value of ancient buildings to the student of history, whether general or local, deprecates all alterations in, and restorations of such buildings which may obliterate their historical character and features.” By all means let us preserve our really good representative ancient buildings, but we will need to do more than pointing, or using cement and mortar here and there to keep some of them from becoming a shapeless mass of crumbling material. A time will come when the best stone will disintegrate and decay with the elements, and tumble the building into ruin and dust. We cannot adopt a system of shoring for our cathedrals and abbeys or for the Irish Round Towers. The temporary expedient of propping up the tottering Temple Bar cannot be adopted in the preservation of our ancient buildings. We may photograph, lithograph, engrave, paint, and even model them before their historical character and features are obliterated, and thus hand down their pictorial forms to the far future; but we can do no more after a certain time, save by works of reproduction and imitation. We grant at once that this form of restoration or reproduction should not be attempted so long as it was judiciously possible to avoid. To this extent, however, we can go with the question of restoration and no further. The duration of human life at its longest limit is known; and the duration of a building from its materials and the influences that are ever actively at work in certain climes or localities hastening its ruin, may be approximated. A man cannot be restored to life after death, and, apart from disease and accidents, he is certain to drop to earth sooner or later through natural decay. We may arrest the swift course of decay in the human system, or rather prolong an injured constitution; and somewhat similarly the process of decay can be arrested in an ancient or modern building. Beyond a certain point architectural restoration becomes no restoration at all, but a continual replacement of the old by substituting new work. *Facsimiles* in new marble or limestone of old stone-work and carvings will, of course, have a certain value as well as *facsimiles* of rare MSS. or old prints, but the original works, as long as they exist, will be most treasured, and, if of high merit as works of art, will be more valued accordingly.

The course of time and public opinion have evolved necessary and wholesome enactments for the preservation of our National Monuments in Great Britain and Ireland. In Ireland, as most people interested are aware, the conservation of our ancient buildings is, to a certain extent, under the Board of Public Works. A number of them have been already scheduled, and the work of conservation or necessary reparation is entrusted to an official known as the Superintendent of National Monuments. This official, Mr. T. N. Deane, is an architect, and his appointment led to some discussion as to his fitness, from an archæological point of view, for his office. His report of works of conservation continued through last year, finished, and of others at present in progress, is before us in the Appendix E of the Forty-seventh Annual Report of the Board, whose other services are in course of notice elsewhere in these pages.

To Mr. Deane's report, as a continuation of our present subject, we will return in our next issue, as Government control suggests further remarks on other phases of the “Restoration” question.

### SOME BUILDING-MATERIAL-WORKING MACHINES, AND OTHER APPLIANCES.

INTERNATIONAL AGRICULTURAL EXHIBITION,  
KILBURN.

The Royal Agricultural Show, which closed on Thursday last, was an extensive and a remarkable one in many respects. The weather throughout was most unpropitious, and had a very depressing effect on both visitors and exhibitors, and the interests of the latter suffered severely. While we were much pleased with what we witnessed in the department of machinery, particularly in relation to the building industries, we must confess we cared not to lengthen the time of our examination or to renew our visit, as we desired, in consequence of the swampy and almost impassable condition of the grounds. The conveyance of the heavy machinery and goods first cut up the soil terribly, and the constant traffic during the rainy weather that signalised the show created “oceans of sludge,” through which horses and men were almost knee deep. Pedestrians were obliged to walk the planks with the greatest care wherever placed, but over large areas the sludge had to be waded through by ladies and gentlemen desirous to see what was worth seeing. Indeed it would take nearly a week to see the sights and exhibits properly as a whole. We are of opinion also that the Council of the Royal Agricultural Society are greatly to blame for had arrangements, making every allowance for the wet weather and the nature of the cut-up ground. A good deal more could have been done by the society to render the visits of all more agreeable and pleasant, by the judicious outlay of a little money, accompanied by foresight and judgment in its application.

During our zig-zag journey over the grounds we saw a good deal worthy of notice, but we confined our attention to the examination of a number of particular exhibits in connection with the building profession. Among the wood-working and stone-working machines and kindred appliances there were several which evidenced great utility, and a marked improvement was observable in several machines in advance of their original construction. As the exhibition is at an end now, there is no use in numbering the stands; but first among others we had an opportunity of noticing those wood-working machines shown by Messrs. F. W. Reynolds and Co., of Southwark-street, London. We will not here enter into minute details. The “Briton,” a new patent steam-power combination circular and hand-sawing machine, is really a good one. The “Southwark,” a new patent multiple action mortising, boring, core-driving, and tenoning machine, is excellent. It is, we think, the best of its kind yet introduced, its action being by an ingenious arrangement of one lever. It does its various operations capitally and with almost no trouble in adjustment. The tenoning operation suggests to us some remarks as to drawing a comparison between a saw-cut tenon and a chisel-cut one, and the exactness and cleanness of one as compared with the



other in certain woods; but no doubt the tenoning operation is still capable of improvement on the principle on which it is applied in the "Southwark" machine. Messrs. Reynolds's self-acting blind lath painting or varnishing machine is also commendable (Roberts' patent), capable of painting or varnishing 600 laths per hour on both sides, and without the aid of steam-power. The other smaller wood-working machines, and, among them, the mitre-cutting one, are correct and rapid in action. The mortar-mill exhibited by this firm, the "Spécialité," possesses some special features and corresponding advantages over others.

John M'Dowell and Sons, of Walkingstone, Johnstone, near Glasgow, had on show a very serviceable circular saw bench fitted with Casson's patent self-acting continuous feed and other improvements. We watched the action of this machine, the essential feature of it being its continuous feed motion, and we candidly say it performed its work admirably. The piece that is being cut can be returned, and the fence or guide adjust itself immediately to the width of the stuff. The sawyer and his assistant can work on constantly, and the machine is continuous with its self-adjusting continuous feed in operating on an 11-in. plank down to the smallest ordinary needed scantling. M'Dowell's circular saw bench is used by several builders and contractors in Ireland. Messrs. Martin, of the North Wall, and M'Dowell, of Montgomery-street, and others in this city and the provinces have it in operation. We may add here that this circular saw bench is applicable to log and lumber sawing, and when fitted with an angular fence, weather-boards, architraves, window-sills, &c., can be prepared by it. This firm had also on show band sawing machines, &c., which did their allotted work very well.

Messrs. Wurr and Lewis, Cambridge-road, London, exhibited several combined and single circular and band-sawing machines, benches, &c.; also an improved mortar-mill, all of which attracted considerable notice. Some of the exhibits of this firm are in extensive use.

Messrs. Ransome and Co., of King's-road, Chelsea, London, in addition to a number of ingenious machines for making butter firkins, and other casks, exhibited many wood-working machines, some specially adapted for farm or estate work, and in general for builders and implement makers and others.

Messrs. Powis, Carter, and Morris, of Millwall, London, among other exhibits had on view their "Universal Joiner," and the "Estate Carpenter," a machine well adapted for preparing carpentry and joinery work on large estates. Besides several wood-working machines of good make and action, the firm exhibited a new patent continuous rotary and self-lubricating brick machine, which grinds, pugs, moulds and presses plastic clay into double-panelled bricks at one operation. This last machine was eyed much on the part of brick manufacturers and workmen in the same line.

Messrs. W. Olley and Co., of High-street, Borough, London, exhibited a circular saw bench with what is called a drag-motion, and a number of other saw-benches, mortising machines, and workmen's tools.

Messrs. Worssam and Co., of Oakley Works, King's-road, Chelsea, London, had on view a very complete set of wood-working machines, capable of performing, as a whole, nearly all

the general progressive operations in the conversion of wood for house building purposes.

Mr. Thomas Thomas, of Merthyr Tydfil, Cardiff, Wales, had on view some exhibits which were well worthy of notice. Among these were an automatic self-sustaining hotel and warehouse lift or hoist, as also a dinner lift and a sack or bale hoist—all on the same principle. The invention is likely to prove most useful, and applicable to other purposes. All the appliances are very simple in construction, and the principle on which they are worked, though old, seems to have been much overlooked. Making allowances for the hurried manner in which machines and appliances had to be put together on the ground, and the difficulties attendant during bad weather, these lift and hoist appliances worked very freely and satisfactorily. Mr. Thomas also exhibited an "Economic Railway Buffer," which certainly, as a whole, possesses, to our thinking, some solid advantages over the old form, both in make, action, and in detaching and adjusting the make-up within itself, and also in the evenness or uniformity in wear of all its parts.

In connection with the foregoing, Mr. Evan Thomas, of Aberdare, Wales, as sole maker, exhibited Jeremiah Thomas's patent machine for weighing small coal and other small matter. This is a very useful and commendable appliance, and it entirely supersedes the old machine in the colliery districts known as "Billy Fair Play." The machines weigh with accuracy, and it is readily adjusted, and all the operations are performed, showing results which must be acknowledged satisfactorily, both to masters and workmen. The screening process is performed, we may say, very rapidly, the small coal rolling down to the trough or box below, and the dust, slack, or minute particles, passing through the screen to its receptacle underneath.

There were on view several stone-working machines from various firms, some of these appliances possessing special features. Messrs. Robinson and Son, of Rochdale, as makers, exhibited Brearley and Marsden's Patent Stone Dressing Machine, for tooling, planing, and moulding stone. For builders and contractors with large jobs, and for quarry owners, we have no doubt for some operations this machine will be found to be advantageous. Indeed the stone-dressing machine which we witnessed in operation performed its work very well and swiftly. The one on view was a very strongly made machine. One of these machines to take in 4 ft. wide by 2 ft. high and 9 ft. long, will, it was stated, tool or face from 300 to 500 superficial square feet of flags or landings, according to quality, per day of nine hours, at a total cost of 12s. per day. These machines are made in sizes to suit any class of work—heads, sills, channeling, coping, &c.

Messrs. Western and Co., of Belvidere-road, Lambeth, exhibited a stone moulding and planing machine of their own manufacture. Along with other machines, they had on view Hamilton's patent illuminating and other pavement and floor lights.

The Pulsometer Engineering Company had on view their now popularly-known Contractors' Pump in various sizes. Alongside they also exhibited Perrett's Patent Rotary Cleansing Filter, capable of filtering from 2,000 to 3,000 gallons of muddy water per hour, rendering it fit for certain manufac-

turing uses, including boiler feeding, and even for swimming baths.

There were several machines in the exhibition connected with brick and tile making, and cement making and testing, &c. Messrs. Armitage and Fetter, of Bury, near Ramsey, Huntingdonshire, exhibited horizontal pipe and tile machines, and vertical and horizontal brick-making machines of various sizes, which attracted a good deal of notice. Some of the above machines were portable, and suited for small brick makers. This firm had also brick pressing machines for hand power, and clay-crushing machines and clay-pugging mills for horse and steam power.

Messrs. Whitehead and Co., of Albert Works, Preston, had a number of fine machines connected with brick, tile, and pipe making. Among their machines was one of the combined "four process" brick and drain-pipe making machines, as also their double process, and their improved tile and pipe machines.

Mr. F. W. Jackson, of Kingsbury Iron Works, Ball's Pond, London, exhibited a number of useful appliances in connection with building wants—engine, clay and mortar mills, barrow hoists, hoisting and driving gear, and other building plant.

Messrs. Warner and Sons, Crescent Foundry, Cripplegate, London, exhibited farm windmill pumps, patent self-regulating and winding annular sail wind-engines, for use in pumping, chaff-cutting, wood-sawing; and some turbines, rams, and pumps for water-raising and kindred services.

Messrs. Musgrave and Co., of New Bond-street, London, and Belfast, had several exhibits deserving particular notice. Their stable-fittings were very good, as were also their mangers, cow house and piggyery fixings and fittings. This firm acts on sanitary principles in producing their stable and other appliances and fixings, good drainage and ventilation being kept in view in supplying every new want.

Moule's Patent Earth Closet Company, of Garrick-street, Covent Garden, had on view a number of their excellent closets, with earth sifters and driers. In connection there was also shown Field's Patent Flush Tank, made by Doulton, of Lambeth, London.

Among the exhibits of concrete construction, Mr. G. E. Pritchett, architect, of Bishop's Stortford, exhibited a number of specimens of his patented hollow walls and flooring, made up of a combination of drain-pipes and concrete. The specimens appeared to be very well cemented together, and their construction will, no doubt, be useful under some conditions.

The Saville-street Foundry and Engineering Company, Sheffield, had on view "Hall's Patent 'Multiple-action' Stone Breaker and Crushing Rolls, for Mining and other purposes." This is a powerful machine, and breaks stones with a wonderful speed. It certainly makes a noise, and there is a certain amount of vibration, but it crushes its feed when once between its jaws with a terrible precision. In go irregular blocks and heavy lumps, and out they come again broken into many pieces, and ready for spreading upon the roadway. The machine is applicable for crushing granite, and pulverising the same for concrete, asphalté facing, and other purposes.

Messrs. Le Grand and Sutcliffe, of Bunhill-row, London, as proprietors of Norton's Patent "Abyssinian" Tube-wells, had on view



various specimens of tubes, pumps, and well-driving apparatus. Their patent tubular pile, and their post-hole rammer were two of their exhibits deserving notice on account of their applicability under various circumstances.

There are many useful building and cognate appliances which we are obliged to leave unnoticed, including numerous agricultural implements and machinery. In the furniture line of the portable kind, suited for outdoors as well as within, though particularly designed for the use of invalids, the exhibits of Mr. John Carter, surgical engineer and mechanist, of New Cavendish-street, Great Portland-road, London, were well worthy of notice. His portable furniture exhibits, bed tables, chairs, couches, reading-desks for the use of invalids and others, are very ingenious in construction, and are capable of several adjustments or actions to suit sitting, lying, or reclining postures. Some of these appliances must prove highly serviceable to invalids and indispensable to many, at least those who can afford to have them.

#### PLANS OF FARM BUILDINGS.

There were a number of plans on view for farm buildings, arable and dairy farms, of various sizes, for which the society offered prizes of £50. There were some good plans by London practising architects of the Institute and the Architectural Association, but the greater number were by provincial hands. No prizes were awarded, but some of the plans were commended by the judges, and one of them highly commended. The plans as a whole were thought not to fulfil the conditions stated, and that the carrying out of the best of them would entail more cost than was desirable in providing for the farm buildings desiderated. We are of opinion that the Royal Agricultural Society of England has not done its duty by the competitors, but of this we will probably hear more in other directions. Indeed, without mincing the matter, we would advise respectable architects to think thrice in the future before acting once in competing for the shadowy prizes of the Royal Agricultural Society of England.

#### NOTES OF AN EXTRAORDINARY MEETING.

"To sleep, perchance to dream!"

—SHAKESPEARE.

"We cannot lose our little joke."

—HUBER.

THE weather for some time back has been most unfavourable for building works, and much anxiety has been felt by all engaged in out-of-door operations. Having occasion to see a friend and brother chip, whose brains I wished to plunder, in a bit of consultation, I repaired to his hospitable dwelling not a mile from St. Stephen's-green, where I was fortunate enough to find him at home. Having despatched our professional business, I was invited to an inner sanctum, where were several creature comforts, and materials for making that seductive mixture so well described in page 540 of "Macnamara's Neligan;" with bottles, glasses, and in fact everything requisite for the due evolution of pleasing results from protoplasms lying hidden in the beads of John Jameson. As I before observed, the weather being so gloomy, and surcharged (not by the auditor but) with aqueous particles, I felt a strong inclination to rest and ruminate, and was glad when my friend happened to be called out of the room. He apologised for leaving

me, but said it would be for a moment only, and to make myself comfortable, &c. He had hardly gone when a young gentleman, a stranger, came in, who saluted me very pleasantly, and said Mr. C. had been called suddenly away to a meeting in the Mansion House, and we were to follow. I did not like leaving the *aquaspirito acidulo saccharinus* process that I had so carefully exhibited, but hearing from the stranger that we were expected to a gathering of the Royal Institute of Irish Architects, curiosity to see the rare sight overcame all else, and I accompanied my conductor. Having reached the Mansion House, we were shown into the Sheriff's-room, from whence (when there were about 100 assembled) Sir John invited us to the Oak-room to have a "nip," and to show us some curious specimens of saponaceous compounds, with crystalline vases of the various perfumes resultant from the manufacture of *savon* and the lights of other days, with preserved vermicula, such as the youth of long ago were wont to entice the lively perch and roach withal from the pleasant waters of the Poddle, Camac, and Braddoge Rivers, and the Grand and Royal Canals. Having indulged in the talk usual to such a scientific occasion, the doors of the King's-room were thrown open, and we advanced in an orderly manner befitting such an assemblage. I had been at but few meetings of the R.I.A.I., and was not surprised to see the usual person take the chair. (Some one told me he was born to it, but I knew he was born in Keswick in Cumberland, and reared in Cumberland-street in Dublin, it was a very nice chair, with a nice little table on either side, on one of which were some jars of snuff, and on the other papers, an ebony mallet, a brick, a bit of Welsh slate, a bit of Killaloe slate, and a lump of concrete made with lime, Portland cement, liquorice ball and Vartrey water. Pushing forward to the front I had the inexpressible pleasure of seeing the council, and thought of Wordsworth. I also remembered that when in 1833 the great Daniel O'Connell introduced to the House of Commons the members for Dublin, Tralee, Youghal, Meath, Kerry, Kilkenny, &c., he said—"We are seven!" Long may you wave (said I to myself), for you are a fine body and fit to represent anything from Donnybrook Fair to a Board of Works.

All being seated, and some having taken a pinch out of the chairman's box to shew there was "no damp," and that they were not afraid of him, the secretary proceeded to read the minutes of last meeting, which it appeared had been only thinly attended, there being but two members present; and, if I heard aright, which is doubtful, the place was Bandy Jack's in Mullinahack; however, the records were passed without a dissentient voice, and signed by the chairman. At this time a tumult arose from its being announced that a *civil engineer* and a *stucco plasterer* sought admittance. The chairman said although he knew them both to be ill-conditioned, truculent fellows, still if they promised to behave themselves they might remain.

The first matter was the moving a resolution to the effect, "That this institute being fully impressed with the vast importance of the benefits that its council confers upon society, it is hereby unanimously resolved that the degree of Doctor of Architecture be conferred on all Fellows who are chosen to act on the council."

A member here stood up and said: "Before that question is put to the meeting, may I ask are chimney doctors to be included?"

The chairman—"Sir, I cannot too strongly express my sense of the ignorance and indecency of your question. Ignorant, because you should know that the council having unanimously adopted the resolution, there was no necessity to put it to the meeting; and indecent in that you ought also to know that architects have nothing to do with chimneys, and before Doctor D— speaks to the resolution I will invest him and the other newly-constituted doctors with the hod which they will henceforth wear on the right

shoulder. The graduates in other institutions might wear *hoods*, but they, as practical men, would wear *hods*." The chairman then called the council before him, who, having taken three steps backward to the left, gracefully keelt on one knee; partaking of snuff, he thus addressed them:—"Fellows and Doctors of this Royal Institute, it is my pleasing duty to invest you this evening with the badge of that degree which the council in its wisdom believes you entitled to as some slight recompense for the manner in which you have stuck like bricks to its fortunes through good and evil report. I now invest you with the hod, dating as it does from the Tower of Babel, more ancient than the Golden Fleece, more honourable than the Roman Eagle, the Monks of the Scrow, or the '82 Club. Rise, brethren! and long may you carry the bricks of friendship in your hods of hospitality. I will now call on the member for Cusheadall to treat the meeting to a little of his great experience."

The hon. member said that, with great respect for the worthy president, he felt called upon to address the meeting in the first place on a question of privilege. They all knew and all regretted that the representative Press in Ireland was not what it should be; for his part he always encouraged it whenever he met it by reading it, and if there was anything worthy of notice he never failed to address a line to those papers in the sister kingdom that had Ireland at heart and pitied her, although in many cases obliged to condemn her. He was not an Irishman himself, having luckily been born in Ballymacarret; but it did not require the hint of an obscure scribbler in the only paper devoted to building matters in the country to make him remember "Sugar-house Entry." He drew his first breath in a part of the globe between that entry and the Isle of Man, and ribald attacks of that kind flew off at a tangent from the apophyges of his person; he neither knew nor cared who J. S. S. was; if he was a person who knew anything, he should be aware of the fact that "Sugar-house Entry" was a place of resort of those who did not court the vulgar gaze in all they did. In Dublin he had known men in the face of day to go into the "Ship" and "Scotch House," and such places, but in Belfast they bore in mind the maxim of the great Scotch poet, viz.:—

"Whate'er you do when out of view  
Behave yourself before folk."

He would not detain them longer than to thank the council for the honour conferred on him. He was happy to say the great London paper, *The Builder*, had mentioned him in their columns as "an esteemed member of the council of the Irish body." He was proud of the decoration with which the chairman had invested him. He had been a hodman from his youngest days, had lived a hodman, and would, if he were spared long enough, die a hodman. The hon. member sat down amidst immense cheering.

Here a great noise attracted my attention, and a voice with northern accent that I felt I ought to know, said: "Damn all. Aw will speak, an' aw will say meself that the Dublin bidders is a degraded race, an' the arcetects no better." "Well," said I to a neighbour, "I thought Tom was dead." "Yes," was the reply; "but he lives in the spirit! Were he alive in the body, he would not sell himself to the Civil Service co-operatives to make cheap scagliola tombstones, nor would be —." "Hallo, old chap!" said a voice; and I awoke and found my nectar cold, and the meeting all a dream! However, two and a-half ounces of J. J., the same of water at 212°, with a drachm of sugar and two minims of the acid of citron, taken in a hurry standing, restored my equanimity and enabled me to thank my kind entertainer, and, with the aid of a friendly tram-car, to seek the shades where Swift, Delany, Tickell, and Co. in days long vanished had their little fun, and smoked their *dhudeens* of sweet and pleasing fancies.

Fingall, 9th July, 1879.

J. S. S.



### THE PRIORY OF ST. COLUMBA, NEWTOWNARDS, COUNTY DOWN.\*

THE remains of ecclesiastical buildings in Ulster are for the most part of a mean description, which must be attributed to the poverty of the native Irish, and the disturbed condition of the country, lying, as it did, without the Pale. Besides, as Dr. Reeves shows, the Scotch settlers began early to obliterate all traces of antiquity, and hence it is that Down and Antrim are so barren in architectural remains of any kind. The central portion of Down forms rather an exception, as in a compass of a few miles may still be found the well-preserved and beautiful remains of Grey Abbey, the less extensive Abbey of Inch, the church, now the Cathedral of Downpatrick, and the Priory of Newtownards, the subject of the present notice. Newtownards, now a flourishing town, is chiefly known in mediæval times through its connection with ecclesiastical matters. It is sometimes referred to in the Latin form *Villa Nova*; sometimes in Irish, as *Bally-noe*, and even as *Bally-lis-nevan*. The chief object of interest in the place is the building popularly known as the "Old Church," situated on the south side of the town, on what must have been at one time the margin of Strangford Lough. This ancient edifice—of which tradition has preserved so little record that in the excellent guide descriptive of the neighbourhood of Belfast, published in 1874, it is described as one of the finest post-Reformation churches erected in the county before the present century—mainly consists of the original church belonging to the Priory of St. Columba; the only existing portion erected in post-Reformation times being the tower. In Archdall's "*Monasticon Hibernicum*," the foundation of the Priory is ascribed to Walter de Burgo, Earl of Ulster, in the year 1244. This is confirmed by Dr. Reeves in his "*Ecclesiastical Antiquities*." It was dedicated to St. Columba, and occupied by monks of the Order of St. Dominic. Provincial chapters of the order were held here in 1298, and again in 1312. Patrick O'Doran, the last prior, voluntarily surrendered the priory on the 1st of February, 32nd year of King Henry VIII., being then seized of the same, and of the townlands of Newton, Kilcowmon, and Bearnas, all in this county, of the annual value of 13s. 6d. Refections (fees payable as a commutation for the entertainment which the clergy were expected to provide for the bishop and archdeacon when they presided at their rural chapters) were payable by the priory.—"*Dominicani de Villa Nova debebant Refectionem episcopo, videlicet, esculenta et potulenta*."—Terrier of Down and Connor, 1615. The rectory of Newtown was appropriate to the Dominican priory. King James I. granted the priory and lands to James Viscount Clandeboy, and afterwards by assignment to Montgomery Viscount Ards, who built a house in connection with the church in 1618. It was burnt by servants' carelessness in 1664, and the whole manor sold to Sir Robert Colvil in 1675. The church now consists of a nave and north aisle, with a tower projecting from the centre of the external side wall of the latter. There are also traces of a chancel. The nave is the only existing part of the church, which dates back to the foundation in the year 1244. The west and south walls remain tolerably perfect; the eastern extremity of the latter has formed a portion of the choir or chancel, as a hagioscope or leper's window with a priest's door adjacent, both now built up, indicate. There is a recess in the interior, near these, which seems to have been a wall tomb of the thirteenth century. The windows lighting nave, the string-course and eave-moulding on the south side, with the chamfered buttress and window on the west side, exhibit in an unmistakable manner, the peculiar treatment of the thirteenth century.

A number of simply-moulded corbels placed below the windows on the exterior of south wall, seem to have supported a pent roof, which, perhaps, formed a covered passage or cloister, for the monks coming from the domestic buildings to the church. This passage-way, with some slight remains to the westward of the church, form the sole vestiges now visible of the connection of the building with the once extensive monastery. It was probably found in the fifteenth century that the accommodation for the laity as distinguished from the clergy was insufficient, as the north aisle then added extends only four bays in length, and is conterminous with the nave. At this time, the western doorway, with its characteristic Irish treatment of the label terminations, superseded in all likelihood an earlier opening, as may be seen by the disturbed appearance of the stonework. The columns and arches forming the nave arcade are excellent examples of fifteenth-century work, the capitals and arch mouldings being well designed for their position. The bases of the columns are completely covered up with earth. The windows have their jambs rehated for wooden frames, being in this respect similar to those of the thirteenth century portion, but have label mouldings, which the others have not. The windows in the tower, about to be described, have grooved jambs to receive glass. It should be stated in connection with this aisle of the fifteenth century, that in the Montgomery MSS. it is related that—"Here [in Newtownards] is also a fair long church, part whereof were the walls of a priory, but new walls were erected, and a new church, which hath a square tower five stories high, and a great hell in it, joined without any partition, but large freestone pillars and arches, all which now roofed, slated, and made by the said first Lord Montgomery, in his lifetime, and by his order and legacys after his death." Harris, in his "*Description of Down*," says:—"The old Church of Newtown is a large building, divided into isles by four handsome stone arches of the Dorick Order. It was finished, or at least repaired and adorned in 1632, as appears by an inscription on the pulpit. Another inscription on a stone over the north entrance shews that the steeple was finished in the year 1636. The door, which affords an entrance under the steeple, is an arch curiously ornamented with carved work in stone, where may be seen the arms of the Montgomerys, under which, over the portal, are these letters in cypher, N.A. The steeple is but moderately high, yet neatly built, and a spire of hewn stone erected lately on it gives it a handsome appearance." Both these statements seem impossible by a comparison with the architecture of the edifice as it exists. The tower added by Lord Montgomery is in quite a different and later style than either the nave or aisle. It is a square erection in the Jacobean taste, and has lost the spire which originally crowned it. The doorway is a characteristic example of the style, with an elliptic arched head flanked by pilasters, and surmounted by a kind of pediment profusely sculptured with foliage and strapwork. On each jamb of the inner doorway is a small head cleverly incised in profile, possibly meant for likenesses of the architect and the contractor. The upper stages are approached by a small winding stair in one angle. The belfry stage, lighted by four semicircular-headed windows with labels, still contains the bell, which is of considerable size and graceful form, and is ornamented by a band of foliage cast upon the exterior. The church contains three interesting tombs of the Colvil family, with incised coats of arms filled in with lead, dating from the commencement of the eighteenth century. The vault of the Londonderry family is commonplace in the extreme. The church, which in 1854 is mentioned by Dr. Reeves as used for a courthouse, was soon afterwards despoiled of its roof, and completely dismantled by the then rector. It is now kept in excellent order by the wish of the Londonderry family.

### HARDWOOD JOINERY.

WE (*Timber Trades Journal*) gave our readers a couple of months since some idea of the magnitude to which the trade in American joinery had already attained, but our observations then were principally confined to those productions which necessitated the consumption of pine; a trade is now gradually being developed by our enterprising cousins in hardwood joinery that promises before long to form no inconsiderable portion of their timber exports, and several large American firms already established here are pushing this branch of the trade, with every prospect of its becoming sufficiently lucrative to encourage competition on a large scale with those of home manufacture. In walnut especially the American manufacturers have great advantages for doing a profitable trade, as it is a wood spread over the principal part of the United States, and sufficiently ornamental in grain, as well as close in texture, for almost any work that this description of wood is generally used for.

In most of our public buildings, such as banks and other large public edifices, mahogany is the wood generally selected for the internal and exterior fittings, and this sort forms at least four-fifths of the hardwood joinery of the country, and is at present wholly prepared at home, but it is with this portion of the wood trade that the Americans will at once come in contact. Now, it is well understood that in mahogany there is no chance of any foreign competition, as we, having such a direct trade with Honduras and the Spanish main, can always obtain the raw logs even cheaper than they could get them for in the States. If we look at the prices (which are, by-the-by, seldom quoted) mahogany fetches in the States, we shall find it quite as dear as it is here; consequently it is hardly likely they could work it up cheap enough to make such a difference as the long freight between here and there would come to; but with walnut it is quite another matter altogether, and if they can put it on the market at considerably under the cost of mahogany, there is every probability that it will grow into favour, though as far as official buildings are concerned we do not think it likely that mahogany will be superseded by any other wood for a long time to come. Our ideas of office desks, bank doors, counters, "board" tables, &c., are so intimately associated with mahogany that it would cause something like a revolution of feeling to see them replaced by any other kind of material. Occasionally we meet with oak highly polished into that yellow tint so familiar to the eye in the Bank of England and some Government buildings, but the chief of the fittings in most official residences are, as we said, mahogany, especially in private offices, and we expect it will be a long time before walnut will replace it for similar work; but where the Americans expect to do a large trade is in doors for the superior class of houses and mansions, and no doubt every kind of furniture work where fancy woods other than mahogany are now used. They profess to prepare even this latter for our market, but we have given our reasons why we do not think there is any field for their enterprise in that direction, and no doubt they will make it secondary to the trade in walnut, which really promises them a fair prospect of success.

One peculiar feature of this manufacture amongst Americans is their preference for veneer over solid doors. Now, we confess to having always had a predilection for the latter, but after inspection of one of these walnut veneer doors, and hearing the arguments in its favour from the lips of one of the partners in a large joinery firm—a practical man—we were more than half convinced that veneer for doors was as they put it the best, solely on the ground of non-shrinkability. Being made of pine cores, or small pieces, the door when veneered over with ¼-in. walnut has a toughness that those made

\* By Mr. R. M. Young, B.A. Read at quarterly meeting of the Royal Historical and Archaeological Association of Ireland, held at Belfast on the 2nd inst.



out of the solid cannot attain, and the cores forming the frame are so adjusted with reference to grain that the greatest strength may be obtained. This method of veneering on a door made of pieces is quite novel. It must not be understood that the Americans do not manufacture solid doors from walnut, for they do very largely, and several consignments of such are now in store here, but they give the preference to the veneers, though more costly.

### ADVERSARIA HIBERNICA,

LITERARY AND TECHNICAL.

THE intending purchaser of a new house, or the occupier thereof, who has just commenced his tenancy, is forced to credit or disbelieve as he thinks fit the statements of house agents or their clerks as to the habitable condition of his new choice or "take." Poor credulous tenant, man or woman, as the case may be, would often rather believe what the agent or his factotum may say than go further and fare worse, unless he is prepared to enlist the services of a respectable architect, builder, or experienced building workman to go over the house with him and certify all is sound and sweet. The latter would be the best procedure for both purchaser or intending occupier, for the small fee that he would have to pay a respectable architect, &c., would be well expended. There may be a few tenants out of every thousand who would be fitted to examine and judge whether it was safe to enter a house or worth the rent; but, generally speaking, ordinary purchasers and tenants know little or nothing practically concerning house construction or good or bad materials and workmanship. An observant person, who has any experience of houses from living in several, may be able to see defects in work that is visible, but in the matter of hidden workmanship and materials he is perfectly at sea. Bad house drainage is therefore a terrible evil, and manifold are the abuses in connection therewith. Much has been written of late years in connection with house drains and public sewers, and much more remains to be written, for the most barefaced and atrocious "scamping" takes place in connection with their construction. Many house drains are mere make-believe, and, after proceeding a few yards, the piping ends abruptly and there is no connection with the street sewers. This is often the case with drains made by "Jerry" and speculating builders, many of which we have witnessed and examined on both sides of the Channel. We may say, without fear of contradiction, that the drains in connection with all Jerry houses are imperfectly constructed, and that "bad" are the best of these. They are badly made and of bad materials, even where they are connected with the street or public sewers. If a watch were placed upon one of the "handy men" employed in laying the drain-pipes under or leading from Jerry house property, it would be seen that the "scamping" workmen do this particular work in a desperate hurry, and cover in the pipes as fast as they are laid, to prevent a surprise or detection. In the suburban quarters of London, no more than in Dublin, little real supervision on the part of the authorities takes place. In Dublin, we are not aware that any local authority supervision takes place, and the unprincipled builder may do as his conscience dictates, and a very elastic conscience indeed is possessed by the speculative builder of the lower order. To be sure, if it is an architect's house—i.e., one designed by a respectable practitioner—he will see for his own credit' sake that good and serviceable drains are constructed, that the pipes are laid with a proper fall, and that the jointing and connections everywhere are perfect. Contractors who execute sewer work have among their body men who do not scruple to "cheat the devil in the dark," to use a vulgar but very apt expression. We know of a glaring instance lately where the contractor of a big job for street sewerage let a portion

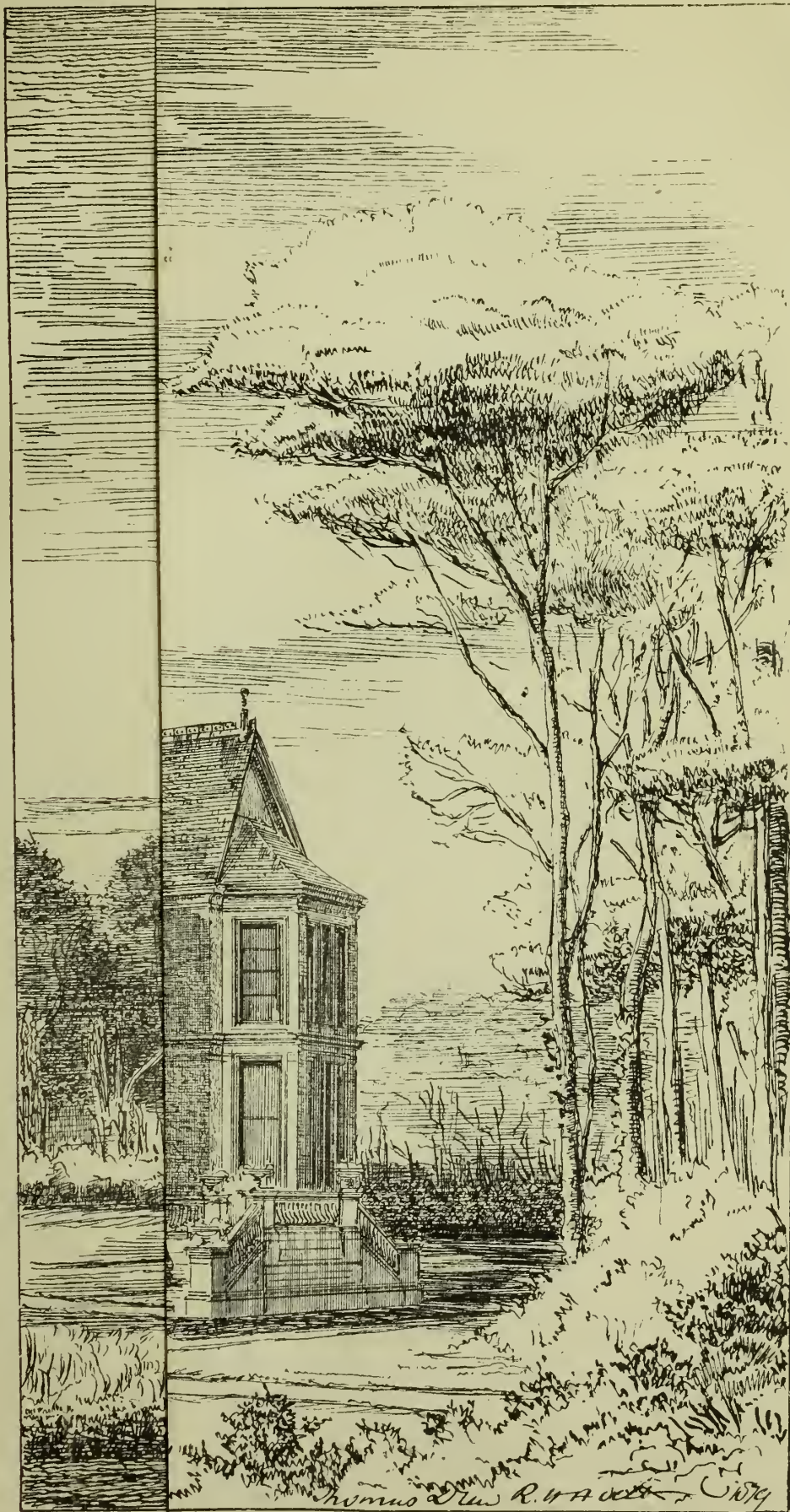
of his work to a sub-contractor. The latter, either through connivance with his own foreman, or by the foreman's connivance with somebody else, or perhaps by a collusion all round, scamped the sewer work by leaving out at intervals long lengths of the outer rings of brickwork, thus putting into the pocket of his master a large saving for unused thousands of bricks, mortar, and labour. When the swindle was discovered by an accident (a discharged workman having let the cat out of the bag), the chief contractor was alarmed, the sub-contractor protested his innocence of the fraud, and those who were really responsible managed by some cock-and-bull story to wriggle themselves out of the difficulty. Contractor No. 1 was, of course, an upright man, who was above deceiving the local board or the ratepayers. Contractor No. 2 was, of course, a downright honest sub-contractor, who would be above stooping to such low practices; and as for the sub-contractor's foreman, he was what his employer always believed, a straightforward, plain-dealing, honest, and experienced man. Nobody knew, or pretended to know, that the outer ring of brickwork was left out at intervals; and the workmen or bricklayers who *did not* lay the bricks they should have laid were spirited away from the job before the members of the local board and the parish surveyor instituted an inquiry into the grave fraud and scandal. Now, are we to believe that the fraud was owing to lazy bricklayers who were anxious to get over their work as soon as possible, and that they were doing piece-work? It certainly was a specimen of piece-work, and not whole work, this same sewer contract. An independent-minded man would be inclined to believe that the sub-contractor was aware of the fraud, or that he gave directions beforehand to his foreman to work on the most saving principles. We may tell the reader further that this sewer work in question was performed with great rapidity, as fast as the culvert or arch was turned the work was covered in, a precaution most necessary, as some passer-by or intruder upon the ground might put an awkward question concerning the absent rings of bricks. We wonder does any "scamping" sewer work like this take place in Irish cities or towns; and, more particularly, are there many house drains at present in course of construction—mere make-believe efforts at construction? As the hustings orator says, "we pause for a reply," and pass on in the same direction awaiting it.

Pendant to the above, here are some facts from an authority lately quoted in these pages:—"In a gentleman's house the children were always ailing, and, in consequence, I ordered an inspection of the soil-pipe, which was supposed to run under the house and some out-buildings, and join a main-drain in the road behind. On the floor of the cellar being taken up, there was found a very large quantity of sewage, which had been accumulating since the house had been built, seven years before. During the whole of this time all the sewage from the w.c. had run under the floors of these cellars, for at the end of the coal cellars the soil-pipe came to an abrupt conclusion against a mass of rock 12 yards thick, at the other side of which a pipe was placed, and connected with the main drain in the road. No doubt it was in order to save the expense of blasting through the rock that the contractor had scamped the work." No doubt, for a rock or any other hard formation is sufficient to scare a Jerry contractor or builder from blasting, boring, or digging down, as such heavy labour would lighten his profits. Although Jerry builders and workmen are adepts at lying, cursing, and swearing, in defence of their interests, they have an unconquerable objection to blasting rocks for laying their drains. They are not particular, however, when crossed or checkmated in their cunningly-designed frauds to a *blasting* exposition of another kind which needs only to be indicated to be understood.

This was a case in which we were told "the authorities saw the junction," but that the local authority in question or its inspecting official did not want to see what he was wanted to see, was plain enough. "The Borough Inspector received due notice from a builder of his intention to connect a house-drain with a public sewer—came and 'saw the last pipe put in,' with what security may be judged from what is stated above. The rock was allowed to stop the right of way, and the scamping builder or drain-layer skipped over the rock to the other side, and laid just one length of pipe to show the make-believe connection with the public sewer. What an efficient public official? how diligent too? to see "the last pipe put in; and how bright the declaration that the "authorities saw the junction." "And," continues our authority, "nay more,—a builder from a neighbouring place told me that by a judicious tip he could dispense with even this formality, if it were inconvenient to suit the time of the inspector." Alas! we fear that "tips" in town and country to public officials for conniving at bad house-work and drain-work are too common—aye, and other work, and no wonder need be expressed why the public health is murdered and the inhabitants too, not to speak of the plunder of the public money.

A work is announced, entitled a "History of Design in Painted Glass," by Mr. N. H. J. Westlake, F.S.A. It is stated that the work will extend to six volumes, two appearing each year, and that the first two of these volumes are in course of publication. The announcement is suggestive of comment from an Irish point of view, as well as from the general. Although painted and stained glass are considered synonymous terms, the fact is not so, for painted glass differs materially from stained glass. We suppose that under both heads the subject will be treated in the forthcoming work, and if so we hope the author will not forget the claims of Ireland to honourable mention in the history of the revival of the arts of stained and painted glass in connection with church ornamentation, &c. The art of making coloured glass is a very ancient one. Glass painting was practised in France in the twelfth century, and painted windows of the thirteenth century are plentiful in France, Germany, and the British Islands, and belong, perhaps, to the first Painted or Early English style of architecture. Between the thirteenth and fifteenth century great progress was made in the art of glass painting, and several beautiful designs or works resulted, and those which exist will be always prized. After the fifteenth century, and with the decline of Gothic architecture, the art of painting on glass declined, and eventually the art almost died out. Within the present century there has been a revival, and this return to the almost lost art was principally owing to the Gothic Revival. The history of the revival of stained glass in Ireland is inseparably connected with the name of George M'Alister, of Dublin, who before his premature and lamented death at the early age of twenty-six, achieved considerable eminence by his revival of what was considered a long-lost art in his time. In some windows in the Dublin Museum there were, and probably still are, though we have not seen them for years, some good specimens of M'Alister's work. For the benefit of our English readers, who would like to read one of their own authorities, we take the following extract from the old *Gentleman's Magazine* for July, 1812, when noticing M'Alister's death:—"This young artist, who died at the age of twenty-six, in 1812, was the son of the late John M'Alister, head porter of the University [Trinity College]. The principal of his works are in the windows of the Cathedral of Tuam, where are four full-length figures of the four Evangelists, Moses holding up the serpent in the wilderness, the arms and crest of the Waterford family, one of the members of which, the Lord Decies, was archbishop at the period of the insertion of









ADDITIONS TO BLACKHEATH CLONTARF 1870.

Thomas New R. H. A.



these windows; with various ornaments in the remaining windows." Here is a paragraph from a native source (Ryland's "History of Waterford," p. 337):—"The windows [Lismore Cathedral] are of stained glass richly and exquisitely executed, the work of a native artist, George M'Alister, of Dublin, who devoted his youth and talents to discover the lost art of painting on glass, and who died at an early age, after having made himself master of the secret."

Stained and painted glass may have been imported to the British Islands from the continent centuries ago for church decoration, but, doubtless, there were native artists also, ecclesiastical and lay, who worked in the service of the church. The long civil and religious wars that were carried on in this country were most ruinous to the progress of art. In the reign of Henry, Elizabeth, James I., Cromwell, and later, the cathedrals, churches, abbeys, and other religious houses were despoiled of their art treasures, and frescos, stained and painted glass, and other art objects were defaced and destroyed, if not otherwise carried off where removable, or likely to prove valuable to the spoilers and plunderers. H.

## PUBLIC WORKS IN IRELAND.\*

### FIRST ARTICLE.

IN our last number we briefly noticed the issue of the report of the Irish Board of Works for 1878-9. As customary, we will now proceed to take note of some of the more important services and interests involved.

During the year ending the 31st of March last, the loans sanctioned for all services (including £38,700 previously charged on the growing produce of the Consolidated Fund), being £837,756, against £709,934 allocated during the preceding year, the number of loans being 504 and 506 respectively. The special loans of the Board for the year include £17,418 to the County Waterford for its share of the cost of re-building Youghal Bridge; £90,000 to the Derry Central Railway Company, connecting Coleraine with Magherafelt; £1,000 to the Leitrim and Northern Counties Railway Company, connecting Enniskillen with Sligo; £26,000 for improving Dundalk Harbour; £40,000 for building a Graving Dock at Waterford—a want long felt; £12,000 to enable the Corporation to acquire a site for artisans' dwellings; and £45,000 to aid certain undertakers in reclaiming slob lands in Clare.

We trust that, in the matter of sites for artisans' dwellings in Belfast and other places, the action of municipal and local boards will not be signalised by such acts of direct or indirect jobbery, as signalised some operations in the English metropolis. Under the guise of promoting and carrying out improvements, and aiding artisans and labourers to secure better dwellings, not a few local board representatives in London and suburbs have dabbled extensively in purchasing and again selling house property by which the public moneys were used for the enrichment of individuals, while the artisans were pushed against the wall. In fact the providing of artisans' and labourers' dwellings was the last thing thought of by several public board representatives who pretended to be friends of the working classes. The Report under notice informs us that the sanctions for labourers' dwellings in towns have fallen off from £26,614 in 1877-8 to £7,100, providing seventy-three separate dwellings. This is a

great falling off indeed. Under the Glebe Loans Act, eighty-three, amounting to £37,680, have been authorised, which is in excess of the previous year, when the loans were sixty-seven, amounting to £32,061.

For sanitary purposes the loans are twenty-five, amounting to £108,707, as against £42,180 for a similar number of loans in the previous year. The loans granted for this service are intended for the following important objects:—£82,170 for providing water supplies in fourteen districts or towns; £15,337 in sewerage works; £3,100 for baths and wash-houses at Belfast; £6,000 on Galway burial ground; £600 for a fever hospital at Castleisland, in Kerry; and £1,600 on a market-house at Portadown. Loans for sanitary purposes are granted under the Public Health Act of 1878 for several additional purposes, including fever hospitals, markets, street improvements, burial grounds, &c. It may be repeated here that this act removes difficulties, as to rating powers of sanitary authorities, greatly facilitating the operations for making these loans, as doubts previously existed as to the sufficiency of the security for the amount proposed to be borrowed.

Under the class of Arterial Drainage Loans, providing for the drainage of districts by local boards, two districts have been commenced since last report—the River Suck district in the counties Roscommon and Galway, at an estimated cost of £96,195, and the River Ward, in the counties Meath and Dublin, at an estimated cost of £3,910. Four works of drainage maintenance are reported to be commenced under the direct superintendence of the Board during the year. The amounts authorised under the Land Improvement Acts are less during the last year than the preceding, amounting to only £141,480 in 1878-9 as against £158,300 in 1877-8. The sum, however, for the past year is stated to be "considerably greater than the average for the last few years, and shows that the desire to carry out these improvements is not diminishing throughout the country." We hope that it may be so.

Only a limited use up to the present has been made of the power of borrowing for the purpose of providing residences for National School teachers to be attached to non-vested schools, the sum of only £2,858 being applied for providing fourteen of such residences. We fear the National Board system and its belongings is undergoing a change in Ireland owing to more than one cause, but we will not stop here to speculate or forecast.

Applications under the Land Act for loans appear to have come in on a more limited scale than in preceding years. The working of this Land Act suggests some thoughts, and obvious ones, why it has not been more successful in its operations. The sanctions for the past year were but £50,044 as against £62,991 for the preceding year. The Act is in operation since 1870, and since that time 753 tenants have purchased their holdings, becoming proprietors of 44,540 acres, at a total cost of £737,934, in aid of which the Board advanced £439,622. This averages 59 acres to each tenant proprietor. The annual rent paid by these in respect to their holdings previous to the purchase was £30,422, the amount of rentcharge payable for the thirty-five years in respect of the advance made by the Board being £21,981. In nearly ten years' time the operations of the Act should have been far more extensive;

and the question arises, What are the proper steps to take for making the Act more acceptable and more generally availed of on the part of the classes most interested?

Passing over some other services, we come to the Irish Reproductive Loan Act. The system of loans under this act has been in operation for four years, during which time 1,009 advances were made on loan to fishermen, the repayment of each being secured by promissory notes extending over three to five years. The duties in connection with this service are now stated to have probably reached their maximum, having grown from year to year. The total amount loaned since the commencement was £19,880, and the total repayments, including interest, were £11,871. The humble class of people who avail themselves in remote districts of the advantages of this act, without entailing any expense upon the State, appear to have acted heretofore very honourably. Two persons are generally concerned in each loan, so the advantages of the act are spread among a greater number of persons. No applications have been made by the fishermen of Leitrim and Limerick to borrow from this fund, nor have applications been received for any other purpose than for fishery loans. In respect to this loan service the board regret to state that owing, as it believes, to the distress prevailing throughout the country that the amount of promissory notes due and not paid on the 31st of March this year was £353 odd, as against £141 at the same period last year. The causes pointed out by the board are the true ones, and the arrears are due to the exceptional circumstances.

*Re* public buildings, the new Post-office at Cork, somewhat long in hand, is reported as finished and occupied; and the new Post-office at Kingstown is handed over to the postal authorities. A telegraph store has been provided at Belfast. The constabulary buildings include extensive alterations at Ballyjamesduff to adapt a structure to the requirements of the service, and some new works and repairs at Sligo and Baldoyle Barracks, County Dublin. Surveys have been made of fifty-eight bridewells and fourteen military barracks throughout the country, which it is proposed to transfer from the General Prisons Board and the War Department, to be converted into constabulary barracks. At the Royal Hibernian Military School an enlargement of the Roman Catholic Chapel has taken place, for the accommodation of the boys and officials of the institution. At Dundrum Lunatic Asylum some works have been carried out. At the School of Art, Leinster House, an enlarged retiring-room has been provided, and at the Botanic Gardens, Glasnevin, latrines for workmen have been constructed. We would remind the board that a number of latrines are badly needed in connection with other public institutions, and urgent sanitary improvements are called for in respect to more. At Mountjoy Barracks additional fittings have been provided in the battery-room of the Ordnance Survey Office, and improvements made in the heating apparatus. New coastguard stations have been completed during the past year at Curracloe, County Wexford; Howe Strand, County Cork; Rossmoney, County Mayo; and works are in progress at the following:—Ballywalter, County Down; Greenore, County Louth; and Ventry, County Kerry. At the several lodges in the Phoenix Park the work

\* "The Fifty-seventh Report from the Commissioners of Public Works in Ireland," &c. Dublin: Alexander Thom. 1879.



of maintenance comprised the operations of the year with the exception of a new shed for carts erected in the people's garden, and a retiring-room for women and children. The works at the Queen's College, Cork, comprised additions to the School of Medicine, and cases for the new Museum of Anatomy and Physiology are in preparation. The land recently acquired for adding to the available ground for botanical teaching and improving the entrance to the college is now enclosed, and progress is being made in laying it out. The new gate entrance from the Western Road, with the bridge across the Lee and the corresponding avenue, are nearly finished. It is also reported that such progress is made with the house for the growing and scientific examination of plants, that it is certain that it can be brought into use this season. At Belfast the alteration is said to have proved a great improvement both to the public road and to the college. *En passant*, we may here observe that the fate of the Queen's Colleges hangs in the balance, and their future is a most doubtful one, in consequence of Catholic University education schemes promoted within and without the Government.

*Re* National Education Buildings, the erection of forty-five have been provided during the past year, at a total cost of £12,631 odd, towards which the Board paid as grants two-thirds, the remaining one-third being contributed by local persons interested. Various additions, alterations, and other works and needs have been supplied at twenty-two ordinary literary National Schools, at a total cost of £927 odd, the Board paying two-thirds as before, the remaining one-third coming from local sources. In addition to the above outlay, the Board have expended in new works and alterations, repairs and maintenance, at the Metropolitan (or Central) Model School Buildings, the District Model, and Model Agricultural Schools, the sum of £10,586 odd, and a further sum of £1,094 odd for furniture for those buildings. On the ordinary literary National Schools in charge of the Board a sum of £2,905 odd has been expended in works of maintenance and repair. Under the National School Teachers' Residences Act nineteen applications for loans, amounting to £3,943, were received, and eleven loans were granted, amounting to £2,350. Under the Labouring Class Lodging Houses and Dwellings Act twelve applications for loans, amounting to £11,300, were received for the erection of 116 dwellings, and ten loans were sanctioned, amounting to £7,100, for the erection of eighty-one dwellings. In respect to the Limited Owners' Residences the cases are the same as reported upon last year, final absolute orders being made in connection therewith. Provisional applications have been made upon two applications received within the year, one from Colonel C. J. Tottenham for the structural improvement of the mansion at Woodstock, County Wicklow; the other from the Earl of Meath for the construction of works necessary for the supply of water to the mansion at Kilruddery, County Wicklow.

*Re* Land Improvement, the applications and the amounts issued exceed those of last year, the applications being 319, and the amounts issued £125,370. The loans, under which operations have been commenced during the year now reported on, are thus classified:—Drainage and other land works,

101 loans; amount sanctioned, £59,375. Farm buildings, 98 loans; amount sanctioned, £45,270. Labourers' dwellings, 39 loans; amount sanctioned, £23,885. Scutch Mill, 1 loan; amount sanctioned, £235.

In respect to Thorough Drainage, 2,714 acres are reported to have been drained during the year reported on. Six loans, amounting to £2,495, were sanctioned since last report for "planting for shelter." For farm buildings there were 116, amounting to £57,825, approved during the year. Dwellings for agricultural labourers number thirty-six cases during the year, the loans sanctioned amounting to £22,765. When we come to notice the inspectors' reports in the appendices under the Landed Property Improvement service, the above buildings in connection will be suggestive of some remarks.

Applications for the formation of two new drainage districts have been received during the year 1878-9,—namely, the River Bush, in the County Antrim, and Lough Erne, in the County Fermanagh. Since last report of the Board no further steps have been taken in the case of the Lough Erne district. Plans have been drawn and revised, and a number of petitions have been presented by the proprietors of land in the district; but the Board and the proprietors have not arrived at any amicable settlement. This delay is to be deplored; but on the present occasion we will not prejudice the case by saying which party we think are mostly to blame and ought to give way.

#### "IRISH ARCHITECTURAL REPRESENTATION."\*

HAVING published a statement a few weeks since respecting architectural representation in Ireland, and the "dead-and-alive" condition of the Irish Institute of Architects, our remarks elicited a reply from Mr. Thomas Drew, an esteemed member of the council of the Irish body. We inserted the communication without comment, awaiting an opportunity that was likely to happen, and which has happened since, enabling us to ascertain the state of matters for ourselves. We have cast about extensively through the city and suburbs of Dublin, and made inquiries among architects and engineers of old standing, some being members of the Irish Institute, and the conclusions we have formed go far, if not thoroughly, to corroborate many of the assertions made as to the unsatisfactory condition of the Irish Institute. The architects of Dublin, excepting the quota of doubtful members of the profession, are said to amount to three or more times the number set down by Mr. Drew, and many of these are quite willing to associate on a proper basis for organisation. Indeed, the younger members of the profession are more anxious to have a representative body than the elder brethren, and from what we have learned it is not unlikely that in the coming autumn steps will be taken to revive the Architectural Association that existed for some time and performed useful labour in the same lines as the Architectural Association of London. It has been a matter of great regret that the junior body in Dublin and the Belfast Association were not continued, for both certainly commenced well, as their proceedings will show. Had it been at all suspected that the council of the Institute would allow what was considered the parent body to dwindle down as it has done, more energetic efforts would have been made to keep the junior association together, even under modified conditions, or on a basis suited to the local circumstances of the case. To say the social, literary, scientific, and convivial charms of Dublin are such as to render architectural organisation and meetings most difficult or impossible in Dublin, is to say something that will not be generally received. Why should it be more difficult for architects to meet in ordinary session in Dublin, than engineers or members of other professional bodies? London possesses ten times the attractions of Dublin, and so proportionately do several other cities and large towns, yet the architects of those places, senior and junior, can find sufficient time, besides attention to social and convivial calls, when so inclined, to do useful

labour for the interest of their profession. We visited the rooms and libraries, museums, &c., of a few of the learned bodies in Dublin, and we found evidence of wholesome organisation and valuable scientific and literary work. We will not draw any individual comparisons, but certainly the headquarters of the architectural profession in Dublin at present, and for several months past, have not been conspicuous for labour within or for outcome. We speak plainly and without prejudice, for it is our desire to see a healthy Irish Institute formed, and in working order. We desire to see the affiliation of the professional bodies throughout the kingdom with the central one, an affiliation in spirit and purpose for the general good, each city and town at the same time maintaining its local societies intact. No valid excuse can be advanced why Ireland could not support a strong and active Institute. Outside Dublin, in Cork, Belfast, Derry, Limerick, and other cities and towns, there are a number of respectable architects with a fair and increasing practice. Many of these would doubtless join their brethren in the capital if a good active council and energetic secretary were to be found at headquarters. There are petty jealousies rife and unkindly feelings existing in Dublin, no doubt, among members of the profession, but in what city and town are there not dissatisfied beings, and where must we go that we shall not hear and see some unpleasant things? In wealth or population of course no comparison can be drawn between London and Dublin; but as regards wealth, Dublin at present is rich and prosperous enough, and building speculation and industry promising enough to make a number of architects feel easy who mind their business and treat their clients well. Indeed, the building industry for many years in Dublin and other cities in Ireland may be written down as one of the staple trades in the country. In Dublin since the decline of several old local manufactures, the building trades have afforded the chief employment of the artisan population. Dublin architects have far more to do than formerly, and of course their numbers have increased. This increase is one reason why they should be associated, for their non-cohesion or separation has led to the cropping-up of evils which might be expected, evils and abuses which are injurious to the profession, and which can never be minimised until a truly representative architectural body exists. The Royal Institute of British Architects can now answer for the professional integrity of its members, though it is possible still for a member to fall, but if he does, he must "fall out" of the ranks of the honoured corps. This standing scrutiny and discipline will be needed in Dublin whenever a real and active living Institute is founded. At present it is asserted that there are some unworthy members of the order,—men calling themselves architects, who accept hve-commissions. A respectable architect of fair practice in Dublin, offered, some time ago, to give £20 to anyone who would come forward and "bell the cat." That the cat was not publicly "belled" was owing to more than one reason, but chiefly to the fact that in no place in Europe is the name of an informer held in such detestation as in Ireland. Architects, too, have always been reluctant to inform, even on an unworthy member of the profession, and let him fall into other person's hands. In the meantime the habitual offender thrives, to the injury of his brethren, and to the disgrace of the profession; and outsiders, never prone to judge leniently, denounce the whole body for the sins of the unworthy few. It is plain, at the same time, though one architect may not inform on another for sins of omission and commission, some sharp means and measures are necessary to bring an offender to book.

It was stated in a building case in the Court of Queen's Bench, Dublin, that the architects in that city accepted bribes. Now, if such an insinuation or charge were made in the London law courts against any of the members of the Royal Institute of British Architects, think of the indignation it would justly provoke, and how soon the false charge would be repelled, and the accuser called upon to substantiate his statement.

When the council sings dumb, well may the body at large wax indolent and indifferent. We were informed that several respectable builders in Dublin are as anxious to see architecture worthily represented and its interests protected, as are a number of the architects themselves. Some of them, too, would willingly subscribe towards giving a testimonial to the person who would courageously undertake the task, and succeed in bringing to book any architect who was known to be degrading his profession.

The conclusions we have formed may be summarised in a few more words. It appears to us that Dublin at present has not, nor has she had for many months past, a thoroughly representative Institute of Architects. That the Irish capital is

\* From the Builder.



well able to support an Irish Institute; and there are no serious impediments in the way from preventing such a body from meeting and holding regular sessions like kindred bodies in the chief cities and towns in Great Britain. That regularly-conducted proceedings, useful work for the benefit of the profession, and a series of well-prepared papers, will always secure fair audiences in Dublin, no matter what may be the other attractions. That architectural practice in Ireland, particularly in Dublin, demands the formation and maintenance of a truly representative and vigorous Institute, for the conservation of the rights and the correction of the abuses appertaining to the profession.

For the above chief reasons, among other minor ones, a working, representative, and influential architectural body is needed in Dublin, and we should be always glad to record the progress of such an organization. We have been at some trouble to ascertain the present state of things. We hope our bluntly-expressed, but kindly-meant, remarks will be taken in the spirit in which they are written; for we have no private ends to subserve, our standard being the common-weal, and none other.

#### ADDITIONS TO BLACKHEATH, CLONTARF.

OUR illustration is from a sketch by Mr. Thomas Drew, R.H.A., exhibited in the Royal Hibernian Academy. The original house was erected only a few years back by Mr. Drew, and is of somewhat-plain Italian style, with some interior details of what would be now called "Queen Anne" character, but which were then in advance of the semi-developed fashion. The additions now being made are intended to re-cast the whole house on a larger and more important scale, an operation requiring some ingenuity in planning to accomplish successfully. Of the additions entirely new, the large drawing-room appearing prominently in the sketch will be the most important feature. The room proper will be 36 ft. long by 20 ft. wide, with a large bay on each side which will make it practically about 36 ft. by 40 ft., and 16 ft. high. It is to be finished with details of Renaissance character, pilasters, coved ceiling, &c. Mr. Thomas Pemberton is at present the contractor for the building itself, at about £3,800. A large staircase of pitch pine and elaborately-carved walnut promises to be an effective architectural feature.

An old genuine Queen Anne house formerly existed at this place, but in such state of decay as to be impossible to preserve it. An old carved chimney-piece in the present house is the only relic remaining from a fine old ball-room then pulled down.

#### BUILDING PROGRESS IN NEWRY.

IN addition to several buildings of an important character, and testifying to the rapidly-increasing trade of this northern town, we have much pleasure to notice the erection of a grain store for the Messrs. Sinclair, on the Canal-quay, adjoining the newly-erected bonded warehouses of Messrs. Thompson and Co. Internally the building measures 170 ft. in length by 72 ft. in width, and is covered by a roof of single span. The floor is formed of cement concrete 6 in. thick, and down the centre of the store a line of tramway, the rails of which are of steel, has been laid, and the contractors are at present laying down the tramway upon the Canal-quay roadway, so that when the latter is completed the Clanrye Mills (also the property of Messrs. Sinclair) and the various other grain stores on Canal-quay will be, by means of the tramway, in direct communication with each other, the shipping in the canal, and the new grain stores. The roof is constructed of timber covered with felt, and the principals cross the entire width of the store from sidewall to sidewall. It is calculated that the buildings will hold about 3,500 tons of grain. Mr. William J. Watson, C.E., was the architect, and Messrs. Whelan and Watson the contractors.

#### CORRESPONDENCE.

##### THE TESTING OF BRICKS.

TO THE EDITOR OF THE IRISH BUILDER.

Ay me! what perils do environ  
The man that meddles with cold iron.

—HUBBRAS.

SIR,—Referring to the letter of "An Architect" in your publication of 1st inst., as you express a hope that some of your readers will take up the subject, I beg leave to say something on the matter. It appears that your correspondent lately inspected bricks in use (in or) under a certain Government department; he examined them closely, and found them to contain a large quantity of a mineral *not* to be detected by an ordinary chemical analysis, &c.

This is awfully tall talk! a silicate of lime in a burnt brick appears doubtful; are we to infer that he used an *extraordinary* chemical analysis, and, if so, that he carried the means in his pocket? However, as this sort of theoretical and scholastic "flap doodle" has obtained lately in some quarters, I will, without going out of my depth in chemistry, or enquiring what the silicate of lime may have been before the process of burning, endeavour to assist your correspondent with some practical information, as one can see with the naked eye he is not long out of leading strings.

There is, perhaps, no article in the list of building materials so difficult to test as a brick; in fact no one test can be applicable, and much of the result of its use must depend on the experience of the architect, assisted by the skill and practice of the workman. The burning of bricks is in many instances a great source of safety, as in the process much of the carbonic dioxide and other gases are driven off which would prove destructive if left latent. As the excellence of a brick depends altogether on its antecedents, the architect should ascertain before preparing his specification the best localities for the manufacture convenient to his work, and in these localities examine the nature of the clay and method of preparation; along with this he should get a character of the produce, and, being satisfied on these points, allocate the several descriptions of brick to the portions of his work they are best suited for. Brick clay should be dug out in autumn, and allowed to mellow through the winter, the lumps thoroughly broken up, and frequently turned and exposed to the atmosphere and frost; in the spring the clay should be thoroughly soaked in water, tempered and kneaded, and worked in a pug-mill. This is what *should* be done, but I have seen in many instances bricks in the hands of the workman in two months after the first disturbance of the virgin soil.

I am not aware of any form or combination of *silicon* that could be injurious to a brick; it is an elementary substance, but as the various argillaceous clays used in brick-making are generally mixed with some other substance, it is not at all unusual to find an occasional atom of carbonate of lime in the shape of gravel or flint, or what is called skerry; this in the burning throws off its carbonic dioxide and becomes quick-lime, and will burst the brick through its affinity for water if in a damp situation, so that it is always advisable to throw a few buckets full of water over each load of bricks as delivered on the ground. Bricks for facing purposes should be non-absorbent; a damp wall suffers greatly from frost, an evil that the nicest looking red bricks are particularly liable to; for outside work I would avoid perforated bricks. I built one house with them at Donaghadee; it was my first and last; rain came through, as if the 18-in. walls were of sponge. But to conclude this too long letter, I will say the best bricks in Ireland are the Athy or County Dublin gray stocks; they should be well laid and finished with a tuck joint. Excellent bricks can be had in Youghal and in Belfast, if properly sought after. White bricks are generally sound, clean, and strong; but one must beware of a tendency in some specimens to turn green,

with a curious growth of fungi. Chemical analysis will discover substances in a brick which the process of manufacture render harmless, and much valuable time is often wasted by tyros in running after theory; thus it sometimes occurs that in districts where otherwise excellent argillaceous earths abound veins of skerry or impure limestone are met with; in this case the clay is crushed between rollers, and the evil obviated. I have never known a mineral to be formed during the process of brick-burning; but the age is one of progress!

You, sir, are perfectly right in your impression. The public departments have skilled men to take cognisance of all materials used in their buildings, whose practical knowledge and experience are far beyond the tests of the schools. What a mull science made in selecting the stone used in the Palace at Westminster! A good stone or brick may contain the same materials as the worst; chemistry will tell you the constituents, but it will not tell you the lasting property of their combination. The rottenest granites of Cornwall are composed of the same minerals as the granites of Dalkey, the finest in the world, although not fine enough for the patriotic (?) builders of Carlisle Bridge, or the Cork quays; but the London citizens, who know what is good, had Dalkey granite for their Thames Embankment.

ANOTHER ARCHITECT.

July 8th, 1879.

P.S.—The late Captain Marryat, in one of his admirable works, described "Flap doodle" as the food of a certain class of persons; he may have been thinking of some who would hope to form minerals in a brick-kiln.

#### THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.

##### THE BELFAST MEETING.

THE resolve of the association to hold quarterly meetings in future in the provinces, in addition to the annual one in Kilkenny, which, heretofore, and since the foundation of the society, has been its head quarters, we think is not an unwise resolve. In pursuance to this plan the first quarterly meeting was held in the Belfast Museum on the 2nd inst., the chair being occupied by Mr. Richard Langrishe (vice-president). The meeting was fairly successful and representative as a provincial gathering, and much interest was manifested.

The chairman addressed the meeting, and expressed the great pleasure he felt in finding such an interest taken in the association in Belfast. The society was at a very low ebb some time ago, owing to the illness of Rev. James Graves, and the Kilkenny people feared that they should give up. The council had determined that the association should become itinerant, in order to embrace members from all parts of Ireland.

The secretary (Dr. Caulfield) read the minutes, and also some correspondence, including a letter from Mr. J. H. Owen, of the Irish Board of Works, on the subject of the protection of Ancient Irish Monuments. A discussion ensued, in which Mr. J. R. Garstin, Mr. R. M. Young, Mr. W. Gray, Canon McIlwaine, Dr. Caulfield, Dr. Moore, and others took part. The Rev. Dr. Grainger moved:—"That this meeting requests the committee of the association to enter into communication with the Church Temporalities Commissioners with a view to the further protection of ancient monuments, and also to communicate with Sir John Lubbock in order to further the passing of the bill through Parliament for this purpose."

A local committee was appointed, with Mr. Wm. Gray, C.E., as secretary.

The evening meeting was well attended. Lieut.-Col. Smyth in the chair. We should not omit to mention that in connection with the meeting an exceedingly interesting collection of antiquarian objects were shown in the Museum.



## SOME THOUGHTS ON ARTISANS' DWELLINGS.

BY JOHN S. SLOANE, C.E., ARCHITECT.

## PART II.

In my last communication, although describing a favourite plan of house in many of the English towns, I would not wish my readers to suppose I recommended that plan in its details. One objectionable feature is the yard common to several houses, and the passage from the street; the yard is a never-ending source of annoyance from the quarrelling and tale-bearing of the children, contention as to dogs, and a thousand-and-one other matters well known to all housekeepers. The common passage is also an evil that should not be tolerated, unless in connection with a back lane, other egress not being feasible. Isolation in these dwellings is necessary to comfort.

Another matter of great importance is the stairs; and it is surprising what a small attention is given to this by designers and contrivers of model cottages; the make-shifts to save room and expense are disgusting, especially when we give a thought to those for whose use the stair is more particularly required—that is, women and children. I have seen in model cottages a flight of stairs having one riser to every two treads: the system has at least antiquity to recommend it, as I have met with it in a church probably eight hundred years old; but the thought of a delicate woman with perhaps a child in her arms falling on such a stair is enough to make one shudder. In one model cottage that I visited, the occupier, an ingenious man, had covered the highly scientific stair with a ladder, very rough but very safe, made with larch from a neighbouring plantation. The angle of a tolerably accessible cottage stair should be about 40°; this stair was 65°—in fact one would think anything at all good enough for a working man or cottager; and the contrivances sent in to agricultural societies and such congregations to compete for prizes would make a cat laugh, if the sensible animal were not too much grieved at the evidences of folly and inhumanity. Things of this kind are to be met with in many parts of Ireland, and about Strangford, Bandon, and Kenmare I have seen some queer specimens of the realities of Irish life; these are often the result of the handiwork of sketching young ladies, who make a pretty drawing, without any thought as to the comfort of the occupants; an architect is seldom or never consulted, and his fees are saved.

Between the comfort of an easy stair and the nuisance of an inconvenient ladder there lies only a very few inches; for whereas a staircase 2 ft. 6 in. is too narrow, 3 ft. is amply wide; a 10 in. tread is comfort with a 7½ in. riser, but an 8 in. tread with a 9 in. riser is misery. People never like to think of death, but it must come, and so must coffins; and how much does it not add to all other miseries of such a time to have to slide the remains (as I have frequently seen) down a plank from the window, the stair being too narrow and steep to admit of turning the coffin! Young ladies, in planning model cottages, don't think of this. It is indeed strange how little amateur architects think of stairs. There is in the County of Dublin a very large mansion; it was designed about thirty years ago by a young clergyman who, at the time, was a student in T. C. D., and, being undecided as to a profession, attended both the divinity and engineering schools. The contract for the building was taken by a local man, at about £6,000. Whether he missed the stairs from the plans and had an eye to "extras," deponent sayeth not, but he commenced immediately (after laying the foundations) to erect a more commodious gangway than is usual, knowing, as he said, that the ladies of the family would like to see how the work went on, the old dwelling being only a few yards from the new; the stairs were not missed, the work went on gaily till all was nearly finished, when some busy-body discovered that there was no

"escalier," and no place for it, the gangway occupying in the lower storey a space off the hall, in the other bed-rooms, &c. Then came the tug-of-war, then the cry of *Ohone!* and no mistake. What should have been done in the first instance had to be done at last. An architect should be got, so S— was sent for. He recommended a staircase as an additional feature to the rather picturesque box of a house, with campanile to break the sky line. Mrs. H. would not incur the additional expense. Mr. Builder was dismissed with ignominy, but as he took his gangway and scaffolding with him, things became very awkward, so S— had to cut and contrive a stair, and the otherwise commodious dwelling has ever since been an object of heart-burning to all concerned. So much for amateur architects!

There is a matter that all builders or proprietors of artisans' dwellings should particularly attend to, that is sub-letting; it is perhaps the only point on which I would advocate interference; few unacquainted with their way of living would believe what an evil this is, or how it is persisted in. In Dublin, in such places as Bride-street, Marlborough-street, and other avenues of public resort and thoroughfare, three standing four-post wagon-roofed bedsteads are not uncommon in the one room, which also serves for living-room; the owner of the room and his wife, and perhaps, two children will occupy one bed; a female servant out of place or perhaps two will sleep in another, whilst a couple of tradesmen or one tradesman and his wife will have the third, giving a little more than 300 cubic feet of breathing space for each; the males generally rise early to go to their work, so the females have the room to themselves. This is one of the matters which call for improvement, and all such sub-letting should be discontinued. In many of the agricultural parts of England, the model dwellings are execrable. One writer in the sanitary report of the Poor Law Commissioners in 1842, speaking of the crowded state of the cottages, says:—"How they lie down to rest, how they sleep, how they can preserve common decency, how unutterable horrors are avoided, is beyond all conception. The case is aggravated when there is a young woman to be lodged in this confined space, who is not a member of the family, but is hired to assist in the field-work, for every labourer is bound to provide a female. It shocks every feeling of propriety to think that in a room within such a space as I have been describing, civilised beings should be herding together without a decent separation of age and sex." With such a state of things in the country parts of happy England, need we wonder at over-crowding in poor dirty Dublin?

Since I wrote the first part of this article early in last month, I have been consulted (in the way of business) as to the plans for nearly one hundred workmen's dwellings in a provincial city, and in the lengthened conversations that occurred in considering the various portions of the designs, many matters of great interest and value as to the arrangements of such tenements came on the tapis. I have also had a large bundle of plans from the proprietors of a rapidly rising town in the north-west of England, whose whole population is artisan; the drawings differed very slightly, the aim in each case being pretty much the same, i.e. to provide a comfortable home for 4s. 6d. per week, at an outlay of £150 for each house, the interest on the outlay averaging six and a-half per cent., and the cubic cost being about 4d. per foot, in either instance rates were very low as was also ground rent, under £3 per annum. Bearing in mind the safety of investment, and the description of security, coupled with the amount of good that is sure to follow physically and morally, we may look forward with a feeling of hopefulness towards seeing that before long the working man will be provided with a home in which he can enjoy the proper amount of pure air, and awaken from his slumbers in the morning, refreshed and ready for his day's work, without that craving

for a stimulant from which springs so much of intemperance and its concomitant evils.

## THE ART OF THE ITALIAN RENAISSANCE.\*

(Continued from page 200.)

In the lecture on the present occasion he was to speak chiefly of Leonardo, Correggio, and Michael Angelo. So far they had watched the steady progress of Italian art from its rude beginnings in the works of Cimabue and Giotto to its technical perfection in the hands of Montegna, the Bellini, and the great Florentines. They had now to witness the last Titanic effort on the part of men of the most astounding genius to carry the perfection further—to set a new storey upon this Renaissance Tower of Babel, whose top was already in the clouds. In these three men, with the addition of Raphael and the Venetians, the spirit of the Renaissance attains its supreme expression. Leonardo, though in point of time a man of the 15th century, rather than of the 16th century, belongs to the latter by the reach of his genius and the perfection of his style. Chronologically, he is the contemporary of Sando Botticelli and Filippo Lippi; logically, he belongs to the time of Michael Angelo and Raphael. Born in 1452, most of his work was done before the end of the 15th century, of which he saw only the first two decades, dying in 1519. The impression made by Leonardo upon his contemporaries is distinctly felt in the many anecdotes embalmed by Vasari and other writers of the day. He was for the Florentines and Milanese much what Dean Swift is for us in Dublin—a legendary personage around whose imposing personality quite a cycle of such anecdotes gathers. In personal appearance, as in genius, he was a king among princes—moving among men like a demi-god of physical grace and intellectual brightness. Great as was the versatility of many of the men of the Renaissance, Leonardo's was remarkable even compared with that of his most versatile contemporaries—the remarkable thing being the fact that if he was a jack-of-all-trades, he possessed the rare distinction of being master of all. Michael Angelo was great as an architect and sculptor, and a painter, and was no contemptible poet. Leonardo was, besides, a skilled musician, who sang his impromptu compositions to a silver lute of his own designing, formed like a horse's head, and tuned according to acoustic laws discovered by himself. He was an engineer of most original genius, the best anatomist of his day, a great arithmetician and geometer. There were few regions of human activity in which he was not more or less at home. But, probably few men of great genius so favoured by circumstances as Leonardo have left so little of supreme accomplishment, as measured by the amount of actual power possessed. His very versatility, joined with an extreme fastidiousness as to his workmanship, resulting from the high ideal he always set before him, prevented his perpetual activity from achieving the marvellous results which his marvellous genius served to warrant his admirers in expecting. He has also been unfortunate as regards the preservation of his greatest works. Nevertheless, enough of his work remains to confirm his title to a place among the greatest. The lecturer criticised in detail several of Leonardo's works, and then referred to Correggio. To turn from Leonardo to Correggio is almost like turning from Goethe to the most sensuous parts of Spenser; but Spenser is much too serious and thoughtful to be fitly compared with Correggio. The purposeless consciousness of some of Schubert's beautiful and interminable compositions may, perhaps, serve as a tolerable parallel; but no one in any art was ever so innocently wanton, so divinely idiotic as

\* By Dr. John Tocher. Being the sixth of a course of eight lectures delivered under the auspices of the Alexandra College, in the Museum Buildings, Trinity College.



Corregio. Corregio's drawings, which are usually sketches in red chalk, are often very beautiful, though the beauty is rather sensuous than spiritual, his type of female faces with their narrow chins, and heavy-lidded eyes verging upon the hysterical. Between Corregio and Michael Angelo there is a gulf as wide and as deep as the Atlantic. They are inhabitants of different spiritual continents, or rather of different epochs of development. Corregio is like the sylph or sylvan spirit of the later mythologies. Michael Angelo is a Titan horn of the primeval imagination of the world—an insurgent spirit, whose feet base themselves on the roots of the mountains, and whose brow overtops the clouds. The great work of Michael Angelo's youth is the "Pieta" of St. Peter's, finished when he was but four-and-twenty. It is indeed one of the great works of his life—full of the tenderest feeling. The Virgin Mother supports her dead Son on her lap, across which he lies, with his nail-pierced hands and feet and thorn-crowned head hanging languidly in the utter rest of death. The mother gazes into his worn but peaceful face, which seems to have fallen asleep with the words "It is finished" on his lips, as if she were pondering in her breast all that love brings to her remembrance. Her face is full of no vulgar anguish. A solemn awe seems to hold her in a trance, in which things deeper than life or death are revealed to her.

#### THE ARCHITECTURAL REMAINS OF DOWN ABBEY.\*

WHEN first I was honoured with a request to occupy part of the valuable time of this association on the occasion of its meeting in Belfast, my hesitation arose chiefly from the difficulty in finding something fresh to place before it—some unhackneyed topic—some untrampled or new path whereon to act as cicerone this evening. Our visitors here will by this time have found out for themselves that in the north of Ireland (and in the neighbourhood of Belfast in particular) it is very difficult to pursue in any practical and consecutive manner the archæology of mediæval structures, ecclesiastical or domestic. From a variety of reasons well known to all students of local history, we have few and but widely-scattered remains of mediæval art-workmanship; and such as still exist have been scandalously ravaged by the ignorant, as well as by the violent hands of man—shorn of their most interesting and instructive details of construction and ornament. Hence arose my perplexity when casting about for an untrodden path in the one department of your science in which I claim the privilege of making investigation on my own account. It is because my subject is brimful of profit, as well as interest, not merely to the archæologist and the architect, but also to the art-student and art-workman, that I make the venture of bringing it before you; and it is with all deference to the matured judgment, and in reliance upon the good nature of the veterans of this science here, that I endeavour to place before you in some new lights the archæology of Down Abbey.

Our difficulties in finding the new light wherein to examine this subject are lessened by the fact that it has in the most unaccountable way had the "go-by" on all hands for many years, and since Dr. Hodges "analysed" it in his very young days, and illustrated it in the *Irish Penny Magazine* for October, 1841, all alike (with one exception) appear to have gone as they came, ignoring the value of this heritage of Gothic art, or unstirred to examine it in any critical way. The only one who has subsequently exhibited any practical feeling for, or critical appreciation of, the Gothic sculpturings in the modern Cathedral was Bishop Mant (bishop of the diocese whose history and antiquities he loved to ex-

plore). In the library of a local ecclesiologist there is still preserved the original manuscript of the *brochure* anent Down Abbey by Bishop Mant. This, in various forms, has been occasionally published by the provisional committee of the cathedral.

Of all the remains of mediæval art-workmanship of ecclesiastical architecture which we in the Province of Ulster possess, the most extensive and complete in their chronological sequence and association, the most frequently seen, yet the most completely ignored and misunderstood, are the very fine series of sculpturing in the capitals to the piers and pier-responds and other architectural detail of the Gothic period at Downpatrick Cathedral—a structure, of the history of which (time and space being very limited) I will only attempt the merest outline, and that only offered, as I proceed with the paper, by way of collateral evidence to the correctness of my theories.

The present cathedral was commenced in the year 1790, and was engrafted upon the ruin. The venerable yet sturdy fabric of what in Bishop Tiberius's time (A.D. 1536) was the eastern arm of a gorgeous abbey minster fully 240 ft. long. It has been hitherto asserted that it was erected on the ruin of the church, but I must make a distinction, and the difference is that the modern cathedral I can show to have been built upon the choir and sanctuary of the Benedictine Abbey Church, upon what in modern churchwarden's vocabulary is termed the chancel of the church. It will at once occur to you to enquire—But where is the nave of the church? Where are the transepts? Local folk will answer that their foundations and part of their walls are still under the sod in the adjacent field and garden. They are lying, for the most part, outside the precincts of the graves; and, further, there are to the north and north-west of the present church tower the foundations, and probably under the extensive grass-grown mounds more than mere foundations, of the chapter-house, fraterie, dormitories, and other structures incidental to one of the most important and extensive abbeys in Ireland. And these exist, notwithstanding that it was the quarry whence was excavated a large proportion of the building materials with which in the last century many of the buildings in Downpatrick were erected. If we remember that the floor of the choir and sanctuary would have been the most elevated of all the floor levels in the church by a number of steps—at least three steps, more probably seven steps, or ten, or more—and when you have in the Minster at Down deducted the necessary difference in levels to descend to and reach the probable level of the floor of the vanished nave, you will be inclined to believe with me that the quarry has not by any means been exhausted, more particularly when we know that part of the quarry which embraced the nave, probably with crypts, had been buried for two centuries or more in accumulation of *débris* and soil. I need scarcely remind you that in mediæval times it was essential that a Benedictine abbey minster should have its nave. I exhibit the original plan of St. Werburgh's Abbey, in Chester, upon the lines of which John De Courcy's monks had this of Down remodelled and enlarged. Examine the plans of any other abbey churches, and observe the ground plan almost invariably in the form of a Latin cross, of course differing in proportions, but still preserving nave, transepts, choir, and sanctuary. Refer to the plans of Armagh Cathedral, Christ Church, St. Patrick's, Dublin, and satisfy yourself as to their lengths and ground plans; then consult Dean Reeves's invaluable work on the antiquities of Down, and learn that the priors of this great abbey were peers of Ireland, and possessed fully one-third of the lands of Lecale; then find the assessed values and taxation of Down Abbey in the thirteenth century, and I think you will conclude with me that the ruin 100 ft. long, as given by Harris, very inadequately represents the Abbey Minster which was beautified and extended by Bishop Tiberius, and which from its eastern chapel

or sanctuary to its western gable would, on the most moderate calculation, reach 240 or 250 ft. in length.

"The Abbey," as the Protestant cathedral of this diocese is very frequently called, contains within itself representative specimens and scraps of almost every epoch of Gothic art, except "Perpendicular" work, while scattered around it upon the grass, exposed to all weathers in a shameful state of neglect, and treated as mere *débris*, are fragments of a sculptured Celtic cross, which, as we have been informed on good authority, have been *causus belli* "to more quasi-religious shindies than any other stones of their size in Ulster; into the fact of the possession of these now neglected stones (and of another which has since happily found a congenial resting-place), there was imparted not many years ago all the intense bitterness of the *odium theologium*. Surely they are as well entitled to safe sanctuary inside the church as the tombstone of Lord Cromwell. You have on the wall a rubbing of one panel of this cross, which exhibits the well-known characteristics of the "opus Hibernicum." This panel, I may state, almost exactly corresponds with one of the panels of the Cross of Arboe. As these Celtic crosses have been popularly associated with the pseudo-grave of St. Patrick, reference to them here would suggest the vexed question of the final resting-place of the remains of that venerated apostle; but I disclaim any such topic, as it is far wide of the aims of this paper. I must now direct your attention to a sketch which purports to be a view of the ruins of Down Abbey and Round Tower as they stood in 1789—the year in which Mr. Charles Lilly, the architect, made his plans and undertook the supervision of the modern erection. It appears that the original drawing of these ruins by Lilly is now in the possession of William Johnston, Esq., of Ballykilbeg. I also exhibit the lithograph of the abbey given in the "Ulster Journal of Archæology," vol. iv., page 130. From all these illustrations we may observe that the Round Tower of Down anciently stood, with reference to the abbey church when in its prime, in a position somewhat analogous to that which the Round Tower of St. Canice, Kilkenny, occupies—i.e., close to the south transept. In the autumn of 1789 this Round Tower was pulled down, an act of vandalism much to be deplored—the result of political jealousy. Ere I leave the subject of early Irish stone-carvings, I beg to direct your attention to this full-size drawing of a small monolith, which, fortunately for its safety, was built out of harm's way upon the inner face of the wall over the doorway of the vestibule of this cathedral. On this stone we have sculptured an Irish cross with the bas-relief of an early Irish abbot carrying his *bachal* and book. Observe the archaic form of this crozier, coinciding with those anciently in use in the primitive Celtic Church, the relics of some of which, preserved in the Museum of the Royal Irish Academy, bear the appearance at a distance of fossil gas-pipes, but on close inspection revealing exquisite examples of the Irish interlaced work. We might have expected to have found in the vicinity of Down Abbey more frequent traces of the art-workmanship of the Hibernio-Romanesque period. We must remember the growing importance at this period of the Abbey Church and of the ecclesiastical school at Dundaleathglas, or Down. It is in numerous records by the Four Masters shown, that since a period nearly coeval with the introduction of Christianity into Ireland this was the site whereon stood successively enlarged and beautified ecclesiastical structures. We have numerous records of invasion and pillage by the Danes, who were particularly attracted to Down. Under date 1015 Duudaleathglas was totally burned, with its *daim liag* (stone church) and *cloitheach* (round tower). Bishop Malachy the First was an earnest originator and patron of church extension schemes. The period of his episcopate (dating from 1136 to 1149) closely synchro-

\* By Mr. James J. Phillips. Read at quarterly meeting of the Royal Historical and Archaeological Association of Ireland, held at Belfast on the 2nd inst. Specially revised by the author for this journal.



nises with the erection of Cormac's Chapel on the Rock of Cashel, which is the most unique ecclesiastical edifice ever erected in Ireland, and marks the distinct and independent tendency of Irish architecture to work out a style of its own, based on Romanesque types. This Malachy (the famous Malachy O'Morgair) made Down his headquarters, and repaired and beautified the church of that see. He already had in his church the beautified shrine, or tomb, of the relics of SS. Patrick, Bridget, and Columba. We have on record that Donard, a saintly artificer, ornamented this tomb. We have on record that the bell of the will—i.e., St. Patrick's bell—was transmitted from Down to Armagh. We have most of us seen this bell of archaic type, with its exquisitely ornamented shrine. There is abundant proof in the "Annals of the Four Masters," and in St. Bernard's "Life of Malachy" to show that this enlightened churchman fostered native arts and artificers, although in his latter days he craved for the introduction of continental types of church architecture and foreign (we might say alien) forms of church ritual. Pity it is that we have not now in Down Abbey any of the work of St. Douard and such like devotees to that mode of Irish art which identified itself with the legends of local antiquity and the mysterious relics of an ancient faith. Now, however much we may wish to have had some vestiges of the work of Bishop Malachy the First to show in the cathedral at Down, I must say that we do not find any architectural detail evidencing features assignable to any date prior to the undoubted early English work of John De Courcy's abbey builders, or about 1183, during the episcopate of Malachy the Third. I am aware that this statement is at variance with the suggestions of Bishop Mant, who assigns "all the sculptured work in the capitals as well as the arch mouldings of the 'five handsome arches,' as probably belonging to the period of Malachy the First, or 1137;" but I have hereafter to show that a large proportion of this carved detail can easily be identified as the work of two centuries later—i.e., the decorated period. I have been privileged by access to Bishop Mant's original manuscript, now in the possession of Canon MacIlwaine, and I feel bound, in justice to its author, to give the exact words of its introduction, as this causes me to feel less timidity in presenting my own views and researches on the subject. He states that "the deductions which are thus hazarded in this essay are offered with considerable hesitation," and we may feel certain that their author would have amended them if spared to later days when archaeological science had more opportunities of becoming exact and certain. My identification of the architectural detail in the cathedral commences at the moulded circular abacus and unfloriated capitals, which is, without doubt, early English work, and that of a very distinct type, although we have also unfloriated capitals grouping in the decorated work in the clusters of shafts in the east wall of the church. These early English capitals occur where shown on the ground plan of the cathedral, and marked No. 1, and I consider them to have been part of the earliest work of De Courcy's builders; and as Malachy the First's church would have been much too small for the large bands of monks from St. Werburgh's, in Chester, imported by De Courcy, it would have been swept away (in much the same way as the native Irish clergy were turned out) to make room for the new forms of art, and to accommodate a new and more advanced ritual. It is my opinion, based on careful search and much thought, that there was waged on that occasion a war of extermination all down the line, or different lines, against the Irish national institutions—political, religious, architectural, and artistic—and that it was only the superstitious fears of De Courcy which saved such relics of Celtic art as were left about the shrine of St. Patrick, whom this warrior sought in every way to propitiate in his favour, as re-

lated by Camden. It is this which we attribute as being the primary reason why we have such scanty remains of the Hiberno-Romanesque period at Down Abbey—the previous plundering by the Danes being another reason.

I must now direct your attention to the peculiar form of the piers on which rest the five handsome arches of the ruined Abbey Church, mentioned by Harris. To use Bishop Mant's description:—"The form of these piers is not common; they are oblong with the angles taken off, and are ornamented on the shorter faces (i.e., on the east and west faces) with semicircular shafts of cut stone, the capitals of which appear sculptured with figures of human heads, grotesque animals, and foliage. . . . These piers support the five handsome arches, which may be of the same date." Now, with reference to the original form of these "oblong piers with their angles taken off," I will ask you to inspect the very beautiful clustered shafts and pier responds, north and south of the modern reredos at the eastern wall of the cathedral, of which you have photos here as well as sketches. We look to the form of these responds and clustered shafts for the key to the original form of the north and south faces of the pier, which now, instead of such clustered shafts, present chamfered angles with Queen Anne string moulding at the level of the abacus. Doubtless, the architect Lilly was under the necessity of chamfering the angles or re-constructing the piers to the form in which we now have them, for we may easily understand that the angle shafts on these piers would have horribly suffered during the iconoclastic period which ensued between A.D. 1538 (when Leonard Lord Gray, having burnt the Cathedral at Down, converted it into a stable) and the year 1790, at which date Lilly commenced the so-called "restoration," according to his lights and the means placed at his disposal. Upon close inspection of some of those piers I consider that it is not at all improbable that in some cases, if not in all, these angle shafts are plastered up after the fashion of Lilly's period, and still exist; but this, of course, without permission from the authorities, I could not further investigate. I ask you to inspect for yourselves the manner in which the arch mouldings are stopped over these chamfered angles, and draw your own conclusions, which, if they differ from those now advanced, I shall be glad to hear. As it is to the sculptured capitals and mouldings of these engaged shafts we chiefly look for the data upon which to base conclusions as to dates, I will take them in the following order: 1st. Those having archaic forms and grotesques, and with foliage. 2nd. Those having foliage and mouldings showing characteristics of the early English style, in various stages. 3rd. Those having foliage showing characteristics of the decorated style of the thirteenth and fourteenth centuries. The capitals figured Nos. 1, 2, 3, 4, and 5 on the plan have carved on them, in very bold and prominent relief, those fanciful archaic forms and grotesques, and invariably some little foliage attached, and are assignable, by comparison with well-known examples in English abbey churches, to the early English period. Take this one, No. 3—It is the only one of the series which I consider to possess any approach to symbolism, and I certainly find it placed in the most appropriate position, near to the modern pulpit. We have on it carved the tonsured head of a cleric, boldly projecting, and on each side attacking it with ravenous jaws are two nondescripts, which suggest by their attitudes the approach of some besetting sins to overpower the cleric. They have long, flat, dragon's heads, powerful sinewy jaws, with goat's beards, the eyes cunning and intent even in their worn-out condition, the neck twisted, the bodies having wings of a bird with conventional feathers. Short-jointed bipeds they are, with claws and paws; the tail of one of them finishes with early English foliated leaves; the extremity of the other is covered up with one of Mr. Charles Lilly's cherubic namby-pambyisms. This is

the only instance we have in the eastern end of the cathedral of an early English capital, and there may be a reason for this which at some future date I shall be able to explain. Capital No. 1, close to the north stair on the organ loft, has sculptured on it two grotesques with winged bodies, legs, and tails, like those on the capital near the pulpit; but these have human heads, with peculiar head-dress, and smiling faces very much worn. In capital No. 2 we have carved a series of female heads, on their faces a smile which ranges from broad laughter down to as subtle an expression of quiet comical humour as could well be imparted to stone, or preserved unharmed through the fiery vicissitudes of centuries. The leafage which forms a sort of zig-zag under the chins of those hilarious females we would almost pronounce to be early English but for the unconventional freedom of its treatment. This capital, it will be observed, is evidently not in its original place; it does not centre with the shaft, for which it is too small, and its abacus is too narrow to form a stop to the more prominent members of the arch moulding. Capital No. 4, on the north of the organist's seat, has from its position been for many years a weekly temptation to the choristers, and is mutilated in the most approved schoolboy fashion, but still has boldly projecting from its bell the figure of a stag at full stretch; also the bodiless head of an eagle and the headless trunk of a scaly monster. Capital No. 5, on the south of the organist's seat. We have hereon a bearded human head, with a cowl or low cap, and at each side a bird pecking, probably at some lost fruit among the worn foliage; the leafage is very freely treated; the birds are somewhat similarly placed to instances of early English work in Westminster Abbey and Salisbury Cathedral, and on Archbishop Gray's tomb at York. Through the abbey there are a number of heads serving as stops for label mouldings, as springings for window arches. We note a suspicious uniformity in them and in the corbel clusters under the engaged columns from which the groining springs. I postpone expressing an opinion on these details. This exhausts the list of grotesques; probably some critic will be inclined to go much further than I have gone in finding hidden import in these carvings. We know that during the middle ages symbolism and allegory played the chief part in the sculptured decorations then introduced. From the numerous instances of chimerical monsters which meet the eye in every Gothic edifice, particularly those for ecclesiastical use, it will be obvious that in addition to their architectural purpose and necessity they were intended by the art-workmen to personify human vices and evil passions. Frequently the more hideous ones were placed outside the building. Tradition at Down Abbey states it was so there on a corbel table, probably intended as a caustic hint to church-goers to leave their sinful thoughts outside the church. This practice of caricature was frequently carried to excess as a mere exhibition of beastly grotesqueness leading oftentimes to lewdness, and without any approach to symbolism. We find the Cistercian leader, St. Bernard of Cîteaux, strongly writes to repress it, and demands from one of his subordinate abbots "the meaning of such deformed creatures." I am bound to remark with reference to all the mediæval work in Down Abbey, that whether such sculpturings had a meaning, and personified divers beastly sins; or whether they caricatured human follies; or whether they were intended to bear symbolical reference to the penalties of heresy and schism; or whether they were, as I believe them to have been, purely the artistic fanciful outcome of the minds of the Gothic sculptors of the period;—they are not obtrusive nor disproportionate, and to the eye of a spectator placed at such a distance as to lose detail, the outline and general proportions are satisfactory. Nay, the effect would be charming if we only had the clustered shafts and their capitals to dispel the clumsiness of



the piers. With reference to the second class of capitals in the abbey, i.e., those having foliage and mouldings showing details assimilating to the early English, we find only one capital which reveals in its foliage a close approach to those peculiar scrolls, with spiral leafage, flowing tangentially out of the parent curves, the leaves lobed, and occasionally interpenetrating each other, so characteristic of early English work. The foliage on the capitals just mentioned, possess all more or less of the characteristics of this capital. I remark that there is no instance in the abbey of the "dog-tooth ornament," which is incidental to all early English work. And as we come now to consider the carved work of the "decorated period," I may also remark, with reference to it, that there is no single instance of the "ball-flower," which invariably identifies itself with the work of that latter period. All the remaining carved foliage in the abbey is so unquestionably assignable to the "decorated period" of the thirteenth and fourteenth centuries that we have no difficulty whatever in recognising it, and in tracing in it all the details and features characteristic of this period. I remark that this "decorated" detail is almost entirely to be found in the eastern end of the church, while the archaic carvings are chiefly contiguous to the organ gallery. In this "decorated" foliage we notice a profuse use of the vine-leaf and clusters of grapes. In some of these capitals we also have a clever arrangement of oak leaves and stems, with acorns; and although in the leafage there is in nearly every instance a total absence of stiffness, formality, or of conventionality, yet there is preserved through all this freedom, and natural grace a certain systematic grouping and dexterous arrangement which is charming. We notice, however, a total absence of the forced undulation in the leafage which is very frequently found in "decorated" foliage, particularly in the later stages of the style. In some of the capitals the leafage is very cleverly undercut, and I have to remark, in particular, that in the foliated capitals of the before-mentioned clustered shafts on the eastern wall we have specimens of workmanship—gems of art and genius which may be taken as models by the cleverest modern stone-carvers. The sharpness of the detail of the sculptured work loses immensely from the numerous alternate layers of whitewash, or whitening; and although the verger and his assistants preserve the cathedral in a model state of cleanliness, and keep these carvings in particular carefully dusted, yet they cannot be expected to overcome the results and effects of original sin in the offending whitewash, we would regret to learn that their vigorous scourings ever soared to such a high work of art as to divest these carvings of such original sin, and of what, to put it mildly, we must call "matter in the wrong place." With reference to the arch mouldings and bases of the columns, and a variety of details of mediæval work, I have already so far exceeded the time allotted to the paper that I must defer, *sine die*, my allusions to them. I may be allowed, however, a word in conclusion to the memory of Lilly, the architect of the cathedral, and in writing of this gentleman I cannot bring myself to abuse him or his work in the way in which I find some have done. We must remember that the voluminous text-books of Gothic detail now to be seen "under the thumb" of even the best architects, had in his day no existence. Those compilations of the choicest fruits of archæological research by such men as Rickman, Pailey, Colling, Brandon, Parker, Norman Shaw, Nesfield, Viollet le Duc, and the hosts of the collectors of the details of mediæval arts had no existence in Lilly's day. The science of archæology has benefited no class of men more than modern architects, and the benefit has spread itself from that profession into all the various arts and sciences which hail architecture as a loving mistress and nursing mother. We are threatened in those latter days that the fraternal bonds which have united architecture and archæology

are to be rudely dis severed, when even the assisting hand of archæology is to be scorned and thrust aside; when modern architecture has got out of such leading-strings, and is now in fit condition to spurn and repudiate the antiquated helpmate whose gleanings for the past fifty years she had been learning to utilise. Outsiders are now expectantly watching as she plumes her wings for a fly on her own account—while she develops this original nineteenth-century style of architecture. Of course I wish such yearnings and flights of fancy God speed! but I trust that if at any future time the mutilated remains of the ancient Cathedral Church of Down requires the care and supervision of an architect, it shall not fall into the hands of a man who is ignorant of the true applications of Gothic art, or a self-sufficient scornor of the teachings of mediæval archæology.

## LAW.

(Before the Lord Chief Justice and a Special Jury.)

*Meade and Son v. A. Mouillott and Son.*—Action by plaintiffs, who are builders in Great Brunswick-street, to recover the sum of £352 4s. 8d., balance alleged to be due on foot of a contract for certain repairs and additions to the Royal Arcade Hotel, Suffolk-street, of which defendants are owners. The sum originally agreed upon was £1,230, but there were extras, which, it was insisted for plaintiffs, were to be paid for according to the certificate of Messrs. O'Neill and Byrne, the architects. On the 17th June, 1878, the architects gave their certificate for the sum now claimed; but the defendants denied that they were bound by it. The jury found for plaintiffs for £133 over and above the sum of £240 lodged in court, being the full amount claimed, with interest.

*Kangley v. the Hibernian Banking Company and J. McCullough.*—In this case plaintiff, a grocer and publican in Navan, sought to recover damages from defendants for injuries said to have been done to his premises during the work of erecting a branch bank adjoining same. In the evidence for defendants it was clearly shewn that all due care was taken by the contractor; that plaintiff's house was very old, and in a shaky condition for many years. The case was at hearing before the Lord Chief Justice and a special jury for three days, and the evidence did not present anything very dissimilar to other building cases which have brought grist to the mill of the gentlemen of the long robe. In the result the jury handed in certain issues upon which they had found for defendants, but they could not agree on the main issue. Upon those issues on which they had agreed his lordship, on the application of Mr. Heron, Q.C., entered a verdict for defendants, and adjourned the others.

## HOME AND FOREIGN NOTES.

**BANK OF IRELAND ARCHITECTSHIP.**—Messrs. Millar and Symes, Great Brunswick-street, have been appointed architects to the Bank of Ireland, in succession to Mr. Sandham Symes, who retires on pension after a long service.

**LANDSCAPE FROM NATURE.**—We beg to draw attention to the advertisement in present issue from the General Director of the Metropolitan School of Art announcing the formation of a Ladies' Class, for the purpose of studying Landscape directly from Nature in the Glasnevin Gardens. The class will be provided with a tent in the grounds—a valuable article during present moist weather.

**BRAY.**—The tender of Mr. George Dixon, of Kingstown, for the laying of 1,000 yards of kerbing along the Esplanade-road, and the formation of a sea-road and wall at base of Bray Head, has been accepted by the Commissioners at £940.

**Ballivor Church, County Meath,** was on Friday last re-opened after sundry additions and repairs. A new vestry has been added, and the internal fittings renewed. Mr. E. O. Barker was the contractor.

**A PRESS MEM.**—The newspaper styled the *Week's News*, of which some nine volumes had been published, ceased to appear on Saturday last. We understand that arrangements have been made to incorporate it with *Brief*, the well-known weekly epitome of the Press, published by Wyman and Sons, London. *Brief*, which has many features in common with the *Week's News*, is noted for its able summary of the news of the week, and for the fact that its contents are carefully edited, epitomised, and classified under separate headings.

**STREET OBSTRUCTIONS.**—At the Borough Court, Newry, on Friday last, four traders were summoned for obstructing the footway in Castle-street by allowing furniture, &c., to remain for sale opposite their premises. Head-constable Parker said he was ordered by his sub-inspector to caution these people about obstructing the footway, and they had been warned repeatedly. Mrs. Kelly, one of the defendants, said that since the markets were taken away from that end of the town, people would not know that they kept furniture for sale if it was not exposed. Mr. Erskine said they had no right whatever to obstruct the thoroughfare, and if the offence was repeated the fines would be increased. Defendants were each fined 1s. and 1s. costs.

**"WAKING" A SMALL-POX CORPSE.**—At the Northern Police Court on Saturday a penalty of £5 was inflicted on Thomas Keating, living in the tenement house 164 Church-street, for having permitted a "wake" to be held on the body of his son who had died of small-pox. Mr. John MacSheehy prosecuted on behalf of the Public Health Committee of the Corporation. The magistrate (Mr. O'Donel) said that "there was not the slightest doubt but that this abominable habit of holding wakes on the bodies of persons who had died of infectious disorders was the means of propagating disease, and it was notorious that they were constantly held in Dublin." In the present instance several at the wake caught the infection, and one man died.

**LONGEVITY.**—There is at present, it is said, a man in Portadown named John Fagan who has attained the extraordinary age of 110 years. He was born on the 1st of July, 1769, at a place called Grange, a few miles from Portadown. Whilst a young man he went to America, and got on well. His wife having died a few years ago, he came over to see the old country. He has three sons, one of whom is 80 years of age. He has a vivid recollection of the historic events of his early days, and is so fresh and healthy in appearance that he would not be taken to be more than 80.

## TO CORRESPONDENTS.

**ARCHITECT (Belfast).**—Your statements are so very circumstantial that we think it would be highly desirable for you to append your name to your letter. Were we to print it in its present shape it might do more harm than good, and possibly some members of the profession would throw a doubt on its authenticity.

**THE ROYAL HISTORICAL AND ARCHÆOLOGICAL ASSOCIATION OF IRELAND.**—Pressure on our space obliges us to postpone some special remarks suggested by the recent meeting of the association in Belfast. Though the absence of the Rev. James Graves, and a few other fellow-workers of old, from the meeting can be accounted for, it does not argue that they are no longer interested in the studies for which they have already done much. The former esteemed archæologist has never yet met, and possibly never will meet, with that degree of recognition which his labours deserve.

**W. B.**—To your first question we answer, Yes; to your second, We are not aware of any law that stands in the way.

**M. D.**—The St. Stephen's green improvements are progressing towards completion, though perhaps the progress has been slow. The features you allude to are almost identical with those suggested in this journal many months since.

**CLERK OF WORKS.**—Thanks for your communication. We may find it necessary to supplement your facts by some of our own in respect to the supervision of public works in Dublin and elsewhere.

**AN OLD SCULPTOR.**—We think the statue of Sir John Gray is very creditable as a work of art. The likeness is a capital one, and would perhaps be seen to more advantage if the figure had been about 2 ft. less in height. We don't think much artistic ability has been displayed in the design for railing. It may be that hopes are entertained that fairs will be forthcoming to enable our townsman, Mr. Thomas Farrell, R.A., to carry out his design in its entirety, the model for which we viewed some time ago in his studio, Lower Gloucester-street.

Received.—B. C.—S. G.—H. E.—P. L. G.—A Plumber (no).—J. H. S.—R. H. A.—W. P.—An Artisan (in all chief cities and towns).—C. E.—T. R.—W. B. (Glasgow).—W. B. (Belfast).

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Correspondents should send their names and addresses, not necessarily for publication.

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Diplomate in State Medicine, Cambridge University; Professor of Chemistry and Hygiene, R.C.S.I.; Medical Officer of Health for Dublin



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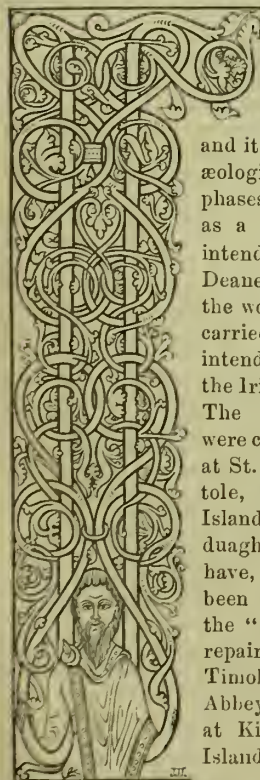
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THE IRISH BUILDER.

VOL. XXI.—No. 471.

THE PRESERVATION OF NATIONAL MONUMENTS. SECOND PAPER.



Our last issue we treated at some length of the subject of Architectural Restoration,

and its antiquarian, archæological, and other phases, or some of them, as a preliminary to our intended notice of Mr. Deane's annual report of the works of conservation carried on under his superintendence as an officer of the Irish Board of Works. The reparations which were commenced last year at St. John's Point, Ardtole, Movilla, Loughlin Island, Maghera, Kilmacduagh, and Howth Abbey, have, we are informed, been completed, as also the "necessary works of repair" at Kilconnell, Timoleague, and Hoare Abbeys, and the churches at Kilcoole and Dalkey Island; and works are in progress at the Seven

Churches at Clonmacnoise, in the King's County; the similar group at Iniscaltra, or Holy Island, County Clare; and the churches at Oughtamama and Dysert-o-Dea, also in Clare; and Skreen, County Meath. We are also told that detailed reports have been made on the following buildings, at which works can be commenced as soon as possible: Roscrea Church and Tower, County Tippe-

rary; Mona Incha, ditto; and Scatterry Island, Clare.

The Superintendent writes:—

"In selecting the order the National Monuments are taken in hand, not only their importance as structures is to be considered, but also their condition and situation. The growing interest amongst all classes towards the preservation of the ruins of Ireland is most apparent, and is evidenced by the number of applications to extend the list of National Monuments, and by the absence of any opposition to the undertaking of the necessary repairs."

Last year we gave expression to some remarks which, we have reason to believe, were not taken in the spirit in which they were intended; for it is a rather difficult matter to criticise honestly without treading upon somebody's corns, and officials generally are very sensitive, and most of them consider that their work is done so extremely well that it is faultless. We are not of those who consider official ability or capacity is always of the best kind,—indeed from our long experience of public works both in this country and in the sister kingdom we are justified in stating that scores of public functionaries are selected for positions for which their abilities do not qualify them. We make this statement in a general way, and leave the task to others to individualise according to their years and lights in their own particular fields of study. Here is a paragraph from one of our last year's articles on the subject under notice:—

"It would furnish pleasant and useful employment for some of our young architects, archæologically inclined, to pay visits in the summer and autumn months to some of the buildings repaired, or under process of reparation, at the hands of Mr. Deane. They could sketch, and criticise, and amass materials for lectures or sessional papers or articles in the professional Press. The reviewing of a report on repairs executed for the preservation of our National Monuments is one thing, but taking notes and personally examining the work done is the more practical form of reviewing; and this is the kind of work which we would have no objection to do now and again for the love of the thing, and for affording the profession and the public a fair insight into what had been done, or was in process of being done, in the way of judicious and rightful preservation."

Among our readers there were several who endorsed the above remarks, and an esteemed contributor responded by setting an example to others. Now that the Royal Archæological Association has commenced to hold quarterly provincial meetings, good opportunities present themselves to the younger and more active members of that body for doing most useful labour in the lines pointed out by us last year. We want to know a little more anent the works of conservation carried on under the Irish Board of Works than their annual report furnishes to us. Independent evidence is needed, that we may be assured that the works of conservation are always carried out judiciously, and that historic and archæological knowledge has been brought to bear on the task, as well as a knowledge of architectural details and the distinct styles of the various periods. Where there is no court of appeal, there is always the danger that erroneous judgments may take place, and irreparable mischief ensue. Government has agreed to do certain work which is paid for out of the public moneys; it is only right that the educated opinion of the country should be allowed to express an opinion. We hope, therefore, that provincial archæologists and architects henceforth in their respective localities will make themselves useful in visiting the buildings under the care of the Irish Board of Works, and particularly those where works of conser-

vation have been carried out or are in progress, and furnish the public with the result of their inspections at the quarterly meetings of the Archæological Association.

But to return to Mr. Deane's labours, the first work of importance detailed in the present report is that of the conservation at Kilmacduagh. Thesè, the Superintendent informs us, have proved more extensive than was at first contemplated, particularly those in relation to the Round Tower. Mr. Deane writes:—

"The condition of this structure was such as to render it a matter of much consideration whether repair was possible. Its leaning position and the dangerous rent running nearly from top to bottom made it no easy matter to secure its safety. A large portion of the overhanging and crumbling masonry was carefully removed and reinstated with the original stones; the dilapidated capping has been restored and is now perfectly safe. To put a lightning conductor to this Tower involved the excavation of the *débris* which had accumulated for years. This resulted in a very interesting discovery. The Tower was built with very slight foundations, and upon the site of an ancient burying ground. The walls at the level of the doorway (26 ft. from the ground) were 4 ft. 6 in. thick, gradually increasing to 6 ft. 5 in. at the bottom; below this two offsets of an aggregate width of 1 ft. 8 in., extending from the outer line of the circumference of the Tower. These offsets were barely a foot in height, and formed the only footings of this great Tower of 111 ft. high. Beneath the footings was soft earth, the mould of the ancient burying ground. Commencing the excavation of the interior at the level of the door, it is interesting to follow the nature of the different strata of the removed rubbish—

- 2 ft. of twigs and *débris* of birds,
- 4 ft. fallen stones and rubbish,
- 3 ft. decomposed twigs and small bones,
- 3 ft. brown earth, ashes, and small bones,
- 9 ft. 10 in. ashes and oyster shells, in which pieces of copper were found,
- 6 ft. 2 in. small stones.

Beneath this, human bones and skeletons *in situ* lying east and west. The illustration gives accurately the position of the latter. This is exactly a similar state of things as found beneath the Round Tower of St. Canice, at Kilkenny, an incontestable proof [is it?] that in the seventh century (the supposed date of the erection) a burying ground existed where the Tower now stands, and from the position of the skeletons, of the Christian era. The masonry of the Tower, which is of stones carefully fitted to each other, is evidently of the same date as that of the west end of the Cathedral of Tempul-Mor, at which the repairs chiefly comprise the arrangement of the numerous sepulchral slabs scattered about the interior, the securing of the dangerous portions of the walls, and general protection of the structure from future decay. This building, with the exception of the west end and a portion of the north and south, has nothing earlier than the fifteenth century. To the north of Tempul-Mor is the church Tempul-Eoin Baiste, or St. John's Church; but it is of the oldest masonry, and is interesting as being of the same type as that of the Tower. All that is possible has been done to sustain its tottering walls."

Mr. Deane's measurements differ in some respects from those of distinguished architects and antiquaries, who have written of Kilmacduagh and adjacent buildings; but it must be granted that Mr. Deane had one of the best opportunities ever afforded since the erection of the Tower, of setting himself right in respect to measurements. His opinions on other points, however, may be questioned. Describing the masonry of the Tower of Kilmacduagh, the late R. R. Brash writes:—"The general masonry is of a very superior class of rubble-work, the stones partially dressed, and few spawls used,—this is its character to the sills of the attic windows, from whence upwards the work is of a very inferior description, and the material small stones, many of them like boulder-paving material." Brash says that it was stated that the conical roof [*i.e.* cap] was in existence ten years before the date of his visit in 1869, at which date he was informed it fell,



carrying with it a large breach out of the south side, and also causing a split down that part of the tower to the extent of some 40 ft. from the top. The tower has since the last century been known to lean considerably out of the perpendicular. Archdall stating that this overhanging was to the extent of 17 ft., which Brash observed exceeded that of the celebrated campanile at Pisa. "This statement," continues Brash, "has been repeated by several writers; it is, however, a very great error. By the most accurate observation I could make, the overleaning is about 2 ft. 4 in., which is quite enough in all conscience. This has been caused by the subsidence of the foundation on that side, which is also quite evident by the fractures in several of the stones in the base of the structure, on the same side."

Mr. Deane's measurements prove that the real extent of the overhanging is much less than even what Brash calculated; and the sections of the tower given by the Superintendent with the ground plan and the plan of the top windows appear to be accurately drawn. As illustrations, these and other lithographs accompanying the present report, are in point of execution in advance of the previous year's illustrations, which in themselves are matters worthy of acknowledgment. Speaking of the attic, Brash considers that:—"This part of the tower is most certainly a re-construction, as I before remarked. From the sills of the attic windows, upwards, is of very inferior materials and workmanship, as also are the window-opes; this, coupled with the unusual number of the opes, evidently points to a period when the upper storey was adapted to the purposes of a belfry, probably ages after its original construction. Dr. Ledwich gives the height of this tower as 110 ft.; it certainly was one of the loftiest of its class. He states the circumference as 57 ft.; his measurement was probably taken at a higher level than mine." Brash had measured it as 59 above the offset.

Now the question arises, Did the attic originally contain four—the usual number of opes in our Round Towers—or six? We are inclined to agree with Brash that four was the original number, and that six belongs to the period of the re-construction of the attic, probably "ages after its original construction." Mr. Deane, in "restoring" the attic, has supplied the two missing opes of the re-construction era, and the necessary mason-work between. Is this, then, a work of restoration, conservation, or replacement, and, on archaeological grounds, is Mr. Deane right? Something more than replacing stones that fell down and were again identified has been done at Kilmaedugh—new work has been done, and, doubtless, necessary work; but, viewing it in the light of the vexed question of architectural restoration, the work done is not a restoration. Some of the members of the Society for the Protection of Ancient Buildings would boldly proclaim, if they took any interest in Irish National Monuments, that Mr. Deane had no right to do what he has done; but in this instance, as well as in others, Mr. Deane perhaps can show good reason for his resolve, if, indeed, it does not appear upon the face of his work. Kilmaedugh Tower should either be preserved as an interesting National Monument, or sacrificed for good by letting it drift into further ruin; and of the two evils, in this instance we cannot but say the lesser was chosen, considering the state of the building. The

"restoration" of the attic of Kilmaedugh Tower, however, affords room for a fair argument as to whether during the late reconstruction four opes should be substituted for the six, as four and not six is the number found in connection with all the examples existing throughout the country, the exceptions, if any, being extremely rare.

As to the other matters referred to by Mr. Deane, the finding of human bones and skeletons *in situ*, we do not consider it an incontestible proof that in the seventh century (the supposed date of the erection) a burying ground existed where the Tower now stands, and, from the position of the skeletons, of the Christian era. We candidly avow we are not believers in the Christian origin of the Round Towers; but this question of Pagan or Christian has already been fully discussed in hack volumes of this journal. We have had a number of Irish antiquaries in the past who argued strongly to prove the sepulchral character of our Towers, and from within the circumference of several of these buildings skeletons and heaps of bones have been excavated; but this nowise goes to help the theory of the Christian era of Round Towers of this country. Forming the adjuncts as they have in most instances to our ecclesiastical buildings for centuries, being appropriated in the Christian era, these Towers have doubtless been used for a variety of purposes. As time advanced they were less cared for and proved less useful in a changed state of society, and no wonder need be experienced that the basements of our Towers were afterwards made use of as occasional burial places. The interiors of many of our ruined abbeys and churches have for some centuries been converted into common burial grounds for the people of the district in which they are situated. That Christian burial grounds gradually extended around our early churches which were built alongside our Round Towers or in close connection therewith, is an obvious inference and fact; but that our Round Towers were built on the sites of Christian graveyards, existing as places of Christian interment before the Towers were built there, we do not believe.

Into the vexed question of the origin of our Round Towers we will not enter here at further length. Apart, the question of the conservation of our ancient buildings has sufficient interest for us at present, and in our next paper we will continue the subject in further review of Mr. Deane's report.

#### THE GENESIS OF PUBLIC JOBBERY.

It is a maxim, or something approximating to it, in the law as regarding evidence, that no man is bound to criminate himself. The unconvicted criminal has sometimes only to hold his tongue, and circumstantial assertions, pressed ever so hard against him, may fail in bringing him to book. Men of all callings may lie like the truth, and with many it is considered *business* to do so. Business, aye, that is the word, and a very clever hack it has been and is still destined to be. Frauds are legion; frauds in buildings, in furniture, and in eatables and drinkables,—frauds everywhere; frauds in the manufacture, and frauds in the selling. From the tiny toy that is bought for the teething infant, to the shell, linings, and tacks that are used when the last convulsive fit has transformed the warm body into a livid corpse—all now-a-days is a combination of fraud and ghastly deception. Whether parents are loving or brutalised ones, the unprincipled tradesman or undertaker of the poor body's last gar-

nishings and trappings, is ready to lie and cheat. It was Wordsworth, we believe, who wrote, that there are some natures in this world who are dead to all respect for kindly feelings, even of their own kith and kin, flesh and blood,—that they would

"Peep and botanise upon their mother's grave."

Much of our present-day funeral ceremony and dead lamenting is a make-up of hollowness and hypocrisy. Men pretend to condole in respect to deceased opponents, when one week, aye, one day previously they were ready to defame and ruin them for life by the ventilation of the most ungrounded slanders. Clever, struggling men of talent who act with independence are often assailed by their inferiors,—by men whose only title to be heard is their factitious importance, or the possession of a few hundred pounds. Alas, that money should command public respect, where there are no talents or moral character to supplement it. Again, mankind cut the rods by which they are afterwards whipped. Our representative system is full of anomalies and evils, as well as partial good, and reformers honestly inclined have hard battles to fight, and with little recognition accruing for long periods. It is often the set design and purpose of public officials to create juntas and cliques in public boards to subserve their own interests. If all representatives, or nearly all, were agreed in promoting or carrying out a useful and acknowledged reform, factions could not assume any injurious proportions, and cliqueism would die of inanition. Cliques, therefore, are encouraged to live. Cliques and juntas of that kind that are useful to officialdom, for the unprincipled official that can command the influence of no clique is in danger of removal, particularly if he is only a man of poor capacity and mediocre talents. Incompetent officials and officers are more numerous in our public boards than the generality of persons are aware, but they are wide awake to their own deficiencies; and, being so, they find it necessary to cultivate a system of cliqueism that ultimately generates into jobbery, for their supporters must need be recompensed somehow for their voices and voting powers. The public moneys after a while are misapplied in wild projects; cliqueism grows stronger and more rampant; salaries are increased; assistant officials are elected: noisy representatives of the people rejoice; reformers are out-voted, and officialdom triumphs. The genesis of our public evils is obvious, and often originate as we have above stated. What is built upon fraud, and sustained by it, must have a bad foundation, yet the foundation may last for many years; for what is a century in the life of a world always undergoing mighty changes? It takes a long time to kill some lies, and they are only destroyed betimes when the fountain that gave them life has itself ceased to gush. An upright official is a valuable public servant; but a corrupt official is often a national calamity, the effect of whose wrongdoing may be felt for long years after he is in his grave. We have selected a type or types, but have left it to others to draw comparisons and make applications. We will conclude by a general illustration. In a certain continental country, the bishops at one time were magistrates as well as bishops. One of these dual personages one day told his valet, whom he detected telling an untruth, that a lie was an inexcusable offence, and that nothing justified the telling of an untruth. Shortly afterwards the valet detected the prelate telling a rather fat falsehood, but the valet awaited his opportunity, when the bishop was alone, of reminding him how he failed to practise what he preached. "You told a untruth, my lord bishop—did you not?" and you know you told me a short time ago that a lie was inexcusable under any circumstances." "Very true, friend—very true; but you must understand that I told that small white lie in my magisterial and official capacity, and not in my character of a bishop." "Ah, my lord," replied the servant, "if the devil should ever come for the magistrate,



what would become of the bishop?" All officials perhaps in these days have legal minds, and they are only given (let us believe) to telling lies in their official capacities. As for the rest, there is a common saying, which we will supply for their apt quotation: "Tis time enough to talk of the devil when he makes his appearance." Whether some of our public functionaries continue to "cheat the devil in the dark" on the same principle, our readers must judge for themselves on the present occasion. C.

## PUBLIC WORKS IN IRELAND.\*

### SECOND ARTICLE.

SOME useful information is contained in the Report of Mr. Robert Manning, the Chief Engineer to the Board of Works, in reference to the progress of works at the different piers and harbours. The operations during the late year at Kingstown was chiefly, if not wholly, confined to works of repair and maintenance. We note that at the mail packet pier some new oak bearing piles have been driven, as a number of these in the staging erected ten years since were seriously injured by the ravages of the worm. Despite our great advance in scientific knowledge in modern times, our wood-boring insects in and out of water appear to be more than a match for our engineers. Timber that in some situations would last in good condition for a hundred or hundreds of years, is in other places destroyed in a few years. Dry rot and wood-boring insects are indeed a plague, but our present-day engineers might with a little thought and foresight checkmate the evil to a very large extent by simple methods.

Besides the usual work of maintenance at Howth Harbour, the sea pavement of the east pier has been re-constructed, the total surface renewed being 2,632 yards.

Works of repair have been carried out at Dunmore and Donaghadee Harbour, necessitated by damages through heavy storms. At the former harbour stones nearly five tons in weight were washed round to the rubble heap at pier head; and at the latter, during the year, 677 tons of stones were lifted out of the entrance, some weighing from four to seven tons, which, as the Report says, "being beyond the power of our machinery, were first broken up by dynamite." Well, whatever the Chief Engineer may think of his *Sisy-puissant* labours at several of our piers and harbours, the workmen under him or the Board have often good reason for exclaiming, "Tis an ill wind that blows nobody good."

Of Ardglass Harbour, we are informed that the works were commenced in October, 1877, under the superintendence of Mr. J. A. Mullins, and that considerable progress was made up to November last, when the Board entered into a contract with Mr. W. J. Doherty for the completion of the works. All the plant and materials upon the works were taken over by Mr. Doherty at their full cost, besides allowing for all the expenditure of the previous thirteen months. We see in the list of works executed at Ardglass that concrete was very extensively used, and that a smith's forge and a workmen's kitchen were constructed with the same materials.

The works originally intended were completed last year at Port Oriel Harbour, County Louth, but the following remarks in the Report tells a tale, which we would rather not have heard:—"But as it was found that

some additional excavation in rock would add to the utility of the harbour, the Treasury sanctioned the additional expenditure of £400, on condition that one-fourth thereof would be contributed locally. The Board having frequently applied for this contribution without success, the works were closed and the plant and tools disposed of at the end of the past financial year."

Ballyvaughan Pier, County Clare, has been completed, and works are still in progress at St. Kieran's Harbour, Cape Clear Island. Mr. Manning gives an account of work executed at Giles's-quay, which were omitted from his former annual report through accident. The works were completed last November, and as there were certain exceptional circumstances connected with the conduct of these works, perhaps it is as well we should give the account or the gist of it in the words of the Chief Engineer:—

"As this has been the first pier built under the direction of the Board, which (with the exception of steps, coping, and wharf pavement) has been entirely constructed with Portland cement concrete, the following particulars will interest. In the month of May, 1872, Mr. Forsyth made a report to the Board with plans and specifications for the erection of a pier at Giles's-quay, the cost of which was estimated at the sum of £10,000. On the 4th September tenders were invited, and four were received ranging from £55,000 to £27,676. As the lowest of these was so much above the available funds the pier was shortened 120 ft. Tenders were again called for, and only one was received amounting to £16,000, being more than double the sum provided for the construction of the lesser work. One gentleman, Mr. Martin Farrell, sent in a design for a concrete pier, which he proposed to build for the sum of £8,922, to which should be added preliminary expenses, superintendence, &c., making the whole cost about £9,500. This design having been referred to me, I found I could not recommend it to the Board, even were the cost within the sum provided. The Board, therefore, ordered the works to be carried out under my superintendence. On going to the place I found that, apart from the difficulty to be encountered from the exposed position of the site, the impossibility of obtaining any suitable stone within a reasonable distance of it, would very much enhance the cost of a stone structure of the ordinary type. As there was an abundance of sand, shingles, and boulders on the beach, I recommended the Board to erect a concrete structure, differing in form from that designed by Mr. Forsyth only so far as was contingent on the change in the description of material used. The pier has been completed at a total cost, including all expenditure whatever, for the sum of £9,300, which is as nearly as possible £1,000 less than it would cost if let to Mr. Farrell at the schedule of prices which accompanied his tender." Who is entitled to the credit of suggesting the use of concrete for the pier in question, instead of stone—Mr. Forsyth, Mr. Farrell, or Mr. Manning? At first sight a march would appear to have been stolen on somebody, and an afterthought converted into a resolution. Mr. Manning gives fairly enough transverse sections of the pier at Giles's-quay as executed by himself (in concrete), and as proposed by Mr. Farrell. Speaking candidly, however, we would be more inclined to adopt Mr. Manning's plan than Mr. Farrell's, in view

of the action of the waves. The curve line which the Chief Engineer adopted was one likely to be productive of good results as it offers the least resistance, and is rather what might be termed a surge embracing, instead of a surge resisting form of pier construction.

Concluding his report on Giles's-quay Pier, Mr. Manning observes:—"The result of this work, I trust, will be received with satisfaction by the Board, especially when it is remembered that it was subjected during its construction to the great storm of January, 1877, which caused damage to the amount of £500, not to speak of that caused by many other gales to which the exposed position of the pier rendered works in progress so peculiarly liable."

Among drainage works noticed in Mr. Manning's report, it is stated that plans and specifications for the necessary works of maintenance for the Ballinderry Drainage District of Counties of Meath and Westmeath were prepared, and a contract entered into with Mr. Kane, C.E., last October, to execute the works in this district. In the case of the Boley Drainage District, County Galway, tenders having been invited, the works are being carried out under the contract by Mr. Lynam, C.E. There are several other minor works of drainage proceeding.

According to the reports of the harbour masters of Dunmore and Howth, the fishing industry alternated much in these places—good and bad at times. Writing on March 24th, the harbour master at Dunmore says: "The present salmon season opened with very bad prospects, the fish being scarce and small. However, as it advanced it improved, and the supply of salmon in the Waterford market during the past week was the best for the year, some remarkably fine fish over 30 lbs. in weight being on sale. The market first opened at 2s. 4d., and the last price quoted was 2s. 1d. per lb. Between last November and Christmas there were a good quantity of fat fish—cod, ling, and hake—taken; but from the end of December till the beginning of February the weather was so mild that fishing was nearly put a stop to altogether. There was a good harvest of mackerel in the months of August and September, and the shell fishermen did very well during the past season. At Howth the summer herring fishery was far below the average, but this was compensated by a good winter take. There are few industries more neglected than the fishery resources of Ireland. Foreign fishermen year after year frequent our coasts in numbers and drive a good trade, while hundreds of native hands are idle and stomachs empty, even along our coasts.

Passing over some services of the Board, we come to the Inspectors' annual reports in Appendix C. *Re* Landed Property Improvement, Mr. Edward Murphy reports on the Counties Down and Donegal, noticing among other works those of sea embankments, farm buildings, labourers' cottages, drainage, &c. The sea embankment at Kinegar, the property of Captain Harrison, is spoken highly of by the inspector, who desires "to call special attention to the efficacy of the cement grouting which was poured into the interstices of the stone pitching, and which has formed a solid mass of the whole embankment face, resisting most thoroughly the action of the waves." The Kinegar bank is formed of sand faced with clay next the sea, having a slope of about 2 to 1 next sea, and

\* The Forty-seventh Report from the Commissioners of Public Works in Ireland, &c. Dublin: Alexander Thom, 1879.



pitched with stone to a height of a couple of feet above high-water mark. The inspector tells us that Lord Bangor has used up several small loans for which he became responsible for the benefit of his tenants, building barns and other out-offices, and improving the dwellings of his tenants. His lordship's kindness is pointed out as an example for others to follow. "The idea," writes Mr. Murphy, "that the Board require 'grand' designs cannot be too soon exploded, as such an idea, I feel convinced, may deter many from seeking for loans. As a rule, the farm dwellings and labourers' dwellings and the farm offices in the district under review, and indeed all over Ireland, are miserably deficient in comfort and economic arrangements,"—and they have always been so to a scandalous extent. In the County Donegal Colonel Stewart has fenced in a great part of his grounds by wire fencing, erected for him by Messrs. Kennan, of Fishamble-street, Dublin. Ardrummon, near Letterkenny, Mr. Mansfield has erected an economical farm steading, after plans furnished by Mr. John Lanyon, of Belfast. This farm consists of 300 acres; the cost of the steading was estimated at £1,500, including a 14-ft. diameter iron water-wheel and machinery for threshing, &c. Colonel Ford is about carrying out large drainage operations on his property at Seaford. He has had plans and estimates prepared for deepening and improving several drainage outlets, twelve or thirteen in number. The inspector writes that "he has had estimates formed, and the area of improvement marked out on the plan, and the cost distributed acreably, and has obtained a large loan to provide for the execution of the work. He, however, will only proceed with the work at the request of his tenants to be benefited, and who must pay the interest of the money to be expended." The inspector says he has no doubt but his tenants will thankfully avail themselves of his offer, as hundreds of acres of land can thus be brought into a profitable state of cultivation, that had hitherto rendered very little return for labour expended. The cost, it is thought, will vary from 3s. to 7s. per acre per annum.

Mr. Thomas S. Irwin reports on the north-eastern district, comprising the Counties of Antrim, Derry, Tyrone, and Armagh. The inspector's report is a short one, though his inspections may have entailed much labour. The works include farm dwellings, farmyard buildings, drainage, farm road-making, fencing, shelter plantations, &c. In Antrim, Londonderry, and Tyrone it is said the proprietors as well as tenants are availing themselves of the Land Improvement Act, and a considerable increase in the applications for loans for useful and paying purposes is perceptible. The rate of labour is lower in this district than at the date of previous report, leading to the belief that there will be an increase in the number of applications for drainage and building loans in the ensuing year.

Mr. Robert J. Stirling reports on the Counties of Cavan, Fermanagh, Leitrim, Monaghan, Sligo, Westmeath, and half of Meath. Of the several works inspected, the greater number were for buildings. Of nine inspections in Cavan, three were for building works, the other six being for drainage and other land improvements. Of seventeen inspections in Fermanagh, ten were for building works and seven for drain-

age and other improvement of the land. The inspection in Leitrim was for drainage; and, of four in Monaghan, there were for building and one for drainage. Of twelve in Sligo, seven were building, the other five being for drainage, road-making, and planting. Of eighteen in Westmeath, thirteen were building cases, and five were for drainage, stubbing furze, and road-making. And last, though not least, in the half of Meath the entire fifteen cases were building ones. We are glad to report such a number of building improvements, as it evidences a step in the right direction in Mr. Stirling's district. We would be more pleased, however, if we were furnished by the inspector with a few particulars as to the character of the buildings, the dimensions, materials, and cost.

Mr. James Butler reports on the Counties of Carlow, Kildare, King's and Queen's, Wexford, Wicklow, Kilkenny, and Waterford—a wide area, in sooth. We are told that the greater number of loans were for the erection of farm buildings, but that there are important drainage works in progress on the properties of the Marquis of Lansdowne, Queen's County, Messrs. Bruen and Bunbury, in the County Carlow. The Earl of Meath is stated to be carrying out very extensive reclamation works in the County Wicklow, and Mr. Budd on Tramore slob lands, County Waterford. Mr. Farney has completed his drainage project in the County Wexford, for which he received the gold medal of the Royal Agricultural Society, and Mr. Palmer's extensive works in the County Kildare have been closed. In many parts of the inspector's district farm houses and offices are being extensively built. Labourers' cottages have increased also, but not to the number expected; "and," says the inspector, "where comfortable dwellings have been executed by some of the proprietors instead of the wretched hovels which before existed, it is very pleasing to see the comfort and happiness of the occupiers." The only proprietors in the districts under notice who have large loans for building labourers' cottages are the Duke of Leinster, County Kildare, and Mr. Cosby, Queen's County. The duke's cottages, being detached, are said to greatly improve the appearance of the county over which they are scattered. Mr. Cosby's cottages are in the village of Stradbally, for which, as we stated on a former occasion, he received the Society's medal. The Land Improvement Act is stated to be working well, and the inspector is of opinion that if loans for drainage and reclamation could be obtained on the same terms as for building purposes, improvements in that line would be much more extensively carried out, "namely 5 per cent. instead of 6½."

In our next issue we will pass under review the remainder of the reports, and, perhaps, other services.

#### SANITARY AND HYGIENIC APPLIANCES AT CORK.

DURING the coming week the City of Cork will be *en fête*, on the occasion of the British Medical Association holding its forty-seventh annual meeting there, and its second in this country. The compliment paid this year to "the beautiful citie" is due to the fact that Cork was the first place in Ireland in which a branch from the parent stem sprung up. The proceedings will take place in the Queen's College, and will extend over five days, viz.,

from the 5th till the 9th inst. The President will be Professor D. C. O'Connor, Cork. On the important subject of Public Health, an address will be delivered by Dr. Andrew Fergus, President of the Faculty of Physicians and Surgeons, Glasgow; and amongst the others who will take part we have Drs. Kidd and Grimshaw of Dublin; Dr. Andrew Clarke, of the London Hospital, and a host of other professors of the healing art. It is expected that Mr. Isaac Shine, C.E., Mayor of Wrexham, will read a paper descriptive of his new Pneumatic Sewerage System.

The exhibition of sanitary appliances, &c., will be in the new Plant Houses on the College grounds, and will no doubt be attractive features to the great majority of visitors. Owing to the very large number of applications from exhibitors, the committee has been obliged to considerably extend the space by the erection of temporary buildings.

The exhibition will be divided into the following departments:—

- I.—Drainage, Sanitary Appliances, and Disposal of Refuse.
- II.—Water Supply, Filtration, and River Purification.
- III.—Food, Clothing, Invalid Furniture, Beds, Disinfection, and Life Saving Apparatus.
- IV.—Sanitary Building Appliances, Plans and Models, Ventilation, Heating, Lighting, Cooking, and Consumption of Smoke.
- V.—Disposal of the Dead.
- VI.—Sanitary Literature.

From the long list before us we print the names of a few firms who will be represented:—Messrs. Edmundson and Co. will show some of their large burners and other light-house apparatus for which they are well known as patentees; they will also exhibit some of Moule's Earth Closets, &c. Messrs. Maguire and Son will have filters, ventilators, and several matters in connection with sanitation and drainage, which we shall notice hereafter. Messrs. Monsell, Mitchell, and Co. will have a goodly display of stoneware goods, &c. Messrs. Carson and Son will exhibit paints suitable for brick, iron, stone, and every description of out-door work. In the matter of wall papers we are glad to find that Messrs. Woollams of London will have samples of their paper-hangings, which they manufacture entirely free from arsenic or any other substance which might prove injurious to health. Another important item will be Ligny's Patent, by which damp buildings can be dried rapidly and rendered perfectly healthy and habitable.

We understand that the Board of Trade have lent a rocket life-saving apparatus; it will be exhibited in action by the coastguard men of the district.

In the matter of sanitary appliances all classes are or should be concerned, for such inventions and improvements bespeak better building, housing, and living, and an improved public health, which concerns us all as individuals. Among the forthcoming exhibits we believe there will be several articles of native manufacture which will favourably compare with imported goods; but it is not our intention in present issue to give details. In our next publication we will furnish some particulars of exhibits that come within the scope of our advocacy; and in the meantime we wish fine weather during the visit, and a little more sunshine than we are at present favoured with.



## ADVERSARIA HIBERNICA,

## LITERARY AND TECHNICAL.

IN one of Thomas Carlyle's early and spirited essays, dealing with the life and career of Dr. José Gaspar Francia, the once potent "Perpetual Director of the Republic of Paraguay," and in review of the books treating of the South American Governments up till the date of Francia's death, some graphic pictures are given of General O'Higgins, the Director of Chile, *i.e.*, Chili, and his father. If the patriot General O'Higgins failed in some things he succeeded in others. As a great road-maker, however, his father will be remembered, and this in itself was a great achievement for the O'Higgins's, for it was the stepping-stone to improvements in agriculture, trade manufactures, and commerce. Without roads and highways of an efficient kind, a country could scarcely make any progress. What the Romans of old did for Britain, O'Higgins accomplished for Chili. But let us introduce our hero in the word-painting of Carlyle, in his essay published in the *Foreign Quarterly Review* of 1843:—"The world-famous General O'Higgins, for example, has after some revolution or two become Director of Chile, but so terribly hampered by 'class legislation,' and the like, what could he make of it?—almost nothing. O'Higgins is clearly of Irish breed, and though a Chileno born, and 'natural son of Don Ambrosio O'Higgins, formerly Spanish Viceroy of Chile,' carries his Hibernianism in his very face. A most cheery, jovial, buxom countenance, radiant with pepticity, good humour, and manifold effectuality in peace and war; of his battles and adventures let some luckier epic writer sing or speak. One thing we Foreign Reviewers will always remember—his father's immense merits towards Chile in the matter of highways. Till Don Ambrosio arrived to govern Chile some half century ago, there probably was not a made road of ten miles long from Panama to Cape Horn—indeed except his roads we fear there are not any yet. One omits the old Inca Causeways as too narrow (being only 3 ft. broad), and altogether unfrequented in the actual ages. Don Ambrosio made with incredible industry and perseverance and skill in every direction, roads, roads. From San Iago to Valparaiso, where only sure-footed mules with their pack-saddles carried goods, there can now wooden-axled cars, loud sounding or any kind of vehicles, commodiously roll. It was he that shaped these passes through the Andes, for most part; hewed them out from mule tracks into roads, certain of them. And think of his *casuchas*. Always on the higher inhospitable solitudes, at every few miles distance, stands a trim brick cottage, or *casuchas*, into which the forlorn traveller introducing himself finds covert and grateful safety, nay food and refection, for there are 'iron boxes' of pounded beef or other provender, iron boxes of charcoal, to all which the traveller having bargained with the post office authorities, carries a key. Steel and tinder are not wanting to him, nor due iron skillet with water from the stream; there he, striking a light, cooks hoarded victuals at eventide, amid lonely pinnacles of the world, and blesses Governor O'Higgins. With 'both hands' it may be hoped, if there is vivacity of mind in him—

Had you seen this road before it was made,  
You would lift both your hands and bless General Wade.

It affects one to hear from Mr. Miers [*Travels in Chile and Le Plata*] that the war of Liberty has half ruined these O'Higgins *casuchas*. Patriot soldiers, in want of more warmth than the charcoal box could yield, have not scrupled to tear down the door, door case, or whatever wooden thing could be come at and burn it, on the spur of the moment. The storm-stayed traveller, who, sometimes, in threatening weather, has to linger here for days, 'for fifteen days together,' does not lift both his hands and bless the patriot soldier. Nay, it appears, the O'Higgins roads, even in the plain country, have not of late years been repaired, or in the least attended to, so distressed was the finance

department; and are now fast verging towards impassability, and the condition of mule tracks again. What a set of animals are men and Chilenos! If an O'Higgins did not now and then appear among them, what would become of the unfortunate? Can you wonder sometimes that an O'Higgins loses temper with them; *shuts* the persuasive outspread hand, clutching some sharpest hide-whip, some terrible sword of justice or gallows lasso therewith instead—and becomes a Dr. Francia now and then? Both the O'Higgins and the Francia it seems probable are phases of the same character; both, one begins to fear, are indispensable from time to time in a world inhabited by men and Chilenos." The history of the struggle for independence in Chili is full of startling surprises, and fierce fights against the Spaniards, whose rule was at last thrown off. Of late years the Republic of Chili has been considered one of the best regulated in South America. One, however, is never certain how long peace may last in any of the republics of the South American Continent. There is always more or less plotting and counter plotting resulting in warfare, and civil war is not conducive to national improvement.

What's in a name?—Much sometimes, and more than the name expresses. London has lately lost its historic Temple Bar, as far as it existed as a building. Sir Christopher Wren's gateway and appurtenances, taken down stone by stone, statues and all, and duly marked, are at present stowed away in a city yard by the municipal authorities, with the intention of re-erecting it elsewhere. The Temple (or law buildings) that gave its name to the gate and the city boundary still stands, and perhaps the name of "Temple Bar" as a landmark will continue in London city annals, though as a street, place, terrace, or row, &c., Temple Bar does not appear in the city directory.

Dublin, too, has its Temple Bar, and it is a historic name, though a street instead of a building. On the north of the Liffey, too, Dublin has a Temple-street, upper and lower, and the latter division is the most ancient, with its seventeenth-century old St. George's Church—an old edifice, but not the first of its name in the city, the original St. George's Church being in George's-lane (now South Great George's-street). The sadly-gone-down locality or street known as Temple Bar in Dublin was once and for long years a prosperous locality, and continued so down till the first thirty years or upwards of the present century. It got its name from being the site of the mansion and gardens of the family of Temple, the first of whom settled in Dublin was William Temple, who afterwards held several offices, and was knighted. His son, Sir John Temple, became Master of the Rolls in Ireland; and in 1646 he published a history of the Rebellion of 1641—a work of a most partisan character, and which is not entitled to any credit, friends and foes of the native Irish being ashamed of it. The famous Sir William Temple, the son of the preceding, who lived in Temple Bar, Dublin, during the Commonwealth, was a member of the Irish Parliament, and a Master of the Rolls. Some time after he left Dublin to commence his diplomatic career on the Continent. In Mr. Gilbert's "History of Dublin" other facts about the Temple family in Dublin will be found. It appears that the Corporation in the last century received from the Temple family, ancestors of Lord Palmerstown, an annual rent of £40 for part of Temple-lane and for land behind Sir John Temple's gardens (now part of Temple Bar).

Alas, there is nothing sweet or pleasant in the Temple Bar of our day!—no trim gardens, no pleasant walks, no trees or wall fruit, not even a healthy shrub or flower, as far as we know. There are plenty of foul-smelling drains, dilapidated dwellings, back yards seething in filth, and poverty and rags from basements to attics and out and about. There is still some life and huxtering trade in Temple Bar, but its wealthy merchants and big and little prosperous shopkeepers of forty

or fifty years ago are all dead and gone, or, if any of them still live, they know the place no longer. Poor Temple Bar! ruin—black, ghastly, and deadly—has rained upon you in torrents, and pelting storms have shattered you in twain! We knew you in our hot boyhood and early school days as a lively spot; and, if we mistake not, dear old Temple Bar, thou wert a place of jolly hatters—hatters busy and prosperous, chatty and respectable!

The brokers of Bride's-alley many years ago migrated northward to Liffey, Mary, and Henry streets, and swelled out anon to the dimensions of cabinetmakers, upholsterers, undertakers, and auctioneers. The trunkmakers of Fishamble-street, like the butchers in our old city markets, have lost their cohesive and gregarious habits, and scattered themselves over the city; but where did the old body of Temple Bar hatters migrate to? It is an impenetrable mystery to us. Perhaps the modern "monster" drapery shops have absorbed the hats as well as the bonnets, and that the hatters of Temple Bar had no successors. Dublin now imports hats as well as other wearables in quantities, and a great many of them are blocked in Dublin without the aid of our hat menders and ironers. It is a great pity that the blockheads that make a number of these imported hats are not made to wear them. The blocking system is advocated for safety for railway travelling, but a system of hat-blocking might be productive of an improvement in the art of hat making and selling and wearing. The cap-makers of Meeting-house Yard were once a busy and numerous race of female artisans; but they, too, have totally disappeared from their head quarters between Usher's-quay and Wormwood Gate during the last quarter of a century. The cap-makers of the famous "Meeting-house Yard" have died out there like the hat-makers of Temple Bar. Some old citizen told us many, many years ago—and it is now like a half-faded recollection flitting across our mind—that the old hat-makers of Temple Bar were originally of a French or Norman-French stock. Perhaps they were Huguenots. Perhaps —. Who will answer?

In one of the back volumes of this journal some interesting particulars are given of the once famous Feinaighian Institution, which flourished for several years in Dublin in the building known as Aldborough House (now and for long years a soldiers' barracks). Among the works of the younger Mossop there is a medal of the Feinaighian Institution, 1816.—*Obverse*: Group representing a youth conducted by Minerva, rewarded by Justice. Motto—"Merenti." In the exergue—"Perge, Age, Vince." *Reverse*: Round a wreath of laurel—"Institutum Feinaighian Luxemburge." In the centre of the wreath—"Publica in Coll: Trin: Dub: admisione primas ferenti." The name of the youth or scholar who obtained this medal was engraved upon it, and the date when granted.

A medal of Daniel O'Connell was undertaken by the younger Mossop in 1816, and the speculation entirely failed, although it was admitted to be an excellent likeness.

Concerning the reverse of a medal for Thomas Ryder Pepper (1821), Mossop wrote in 1823:—"Thomas Ryder Pepper, having worked a copper mine on his own property (a thing singular in Ireland), he wished to compliment his Majesty [George IV.] with a specimen of Irish mineralogy. He had nothing whatever to do with my original medal, but adopted the obverse for the occasion; there might have been about thirty-six medals struck with this reverse. The die is in my possession."

A detailed catalogue of the works executed by William Mossop, senior and junior, is given in the appendix to the second volume of Mr. Gilbert's "History of Dublin." They were both clever medallists, and were not exceeded by any in their day in this or the sister kingdoms. Alas, they were after all but poorly patronised, and their lives were long struggles with difficulties! The elder



Mossop died in 1804, and the younger in 1827. Some time previous to the decease of William Mossop, jun., he held the appointment of secretary to the then newly-founded Royal Hibernian Academy. In 1813 Mossop obtained a premium from the Society of Arts, London, for a medal die that was afterwards purchased by the Feinaiglian Institution, and in 1814 he obtained another premium for a head of Vulcan, engraved in compliance with an advertisement of the Society of Arts.

H.

## CORRESPONDENCE.

## THE

## WIDENING OF LONDON BRIDGE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—It must be a source of much gratification to London citizens to know that they have amongst them such a body as the Royal Institute of British Architects alive to their interests, and powerful enough to make their own existence felt in high places. But for this it is not improbable that the destruction of London Bridge would be *fait accompli*. Poor Dublin has no such safeguard; her monuments can be knocked about without remonstrance at the will of most scientifically ignorant corporators, and by the advice of pseudo-professionals as ignorant as themselves of everything beyond the mere constructive or brute force of the erection they venture on, unassisted by advice, unaided by experience. Your contemporary the *Builder*, in a recent number, treating of this subject, advises those who may wish to see an example of outrigger iron wings added on to an original structure of brick and stone, to visit a certain erection on one of the railways. We of Dublin do not require to go so far for a specimen of all that is *outré* in art and weak and objectionable in construction. We once upon a time took some pride in the architecture of our bridges over the Liffey; we will shortly have nothing of that kind left, unless it be the curiosities of architecture. Let any person interested in such matters look over the parapet of Newcomen Canal Bridge, and he will see the most astonishing example of the “wady-bucketty” style in engineering to be witnessed in the kingdom. At Essex Bridge he will see Corinthian modillions supporting iron lattice girders, “contrived a double debt to pay”—i.e., a support and a parapet,—capped with a cheap and worthless covering of zinc, on to which not all the city chemistry can fix a coating of paint. Farther down the river he will see another instance of what may be done in these days—the beautifully-designed and carefully-considered plan of Gandon, for years referred to by all those of æsthetic tastes as a choice example of Italian architecture, destroyed by the introduction of elliptical arches. Farther on—; but why refer to it? why annoy the City Fathers and Grandmothers, who look forward so anxiously on the 1st and 15th of every month for the *IRISH BUILDER* to guide their tastes in the way they should go? Never in the good old times did Town-Major Sirr desire Watty Cox’s publications with half the interest that the denizens of the City Hall evince in your bi-monthly advent!

Now, whatever excuse the Londoners might have in fears of a supposed bad foundation, the Dublinians had none. “Stand-fast Dick” was as well able to support a bridge in 1874 as it was in 1755, or the older bridge in 1676; and Carlisle Bridge might have been altered and yet remain a well-designed three-arched erection, without attempting a prostituted copy of Gandon’s genius. Although not wishing to be an alarmist, it may not be out of place here to remind the aforesaid City Fathers that there is such a thing as “fatigue,” to which iron is as liable as human beings, and that the Dublin and Belfast Junction Railway Company a few years ago considered it advisable to have their lattice bridge across the Boyne examined by an engineer from London, his little bill for the job being only £700! As the lattice-work of Essex Bridge has now

borne the wear and tear of five years, it might not be amiss getting its capabilities to stand fatigue looked to. There is an excellent man named O’Shaughnessy, of Kilfinane, who is well up in everything, and no doubt he could with a glance of his eye say whether the bridge wings were likely to stand or not, we being so unfortunately placed as regards the absence of a responsible body of architects.

Whilst we are on the Liffey, I would refer to the proposition made by some one some years ago—namely, to cover a part of it over. What a noble mall could be formed from Essex to Carlisle Bridges! The Parisians did something of this sort when they covered in the Canal Saint Martin for 6,000 ft., and formed the magnificent Boulevard La Reine Hortense, now Richard-le-Noir. The distance in our case would be only 1,850 ft., and the cost, compared with the advantages, a mere bagatelle. What grand shop sites could be had along Aston’s, Crampton, Wellington, Ormond quays, and the Bachelor’s Walk! What a certain return with interest for the outlay! Why not get up a company? It would pay better than markets.

In the matter of London Bridge, it does not appear on reference to sections made by Mr. Giles under direction of Mr. Telford in 1823, or those made in 1856 by Commander Burstall, R.N., that there is much cause for apprehension as to a probable sliding to eastward of the present structure, unless great and extraordinary changes have taken place in the past three-and-twenty years. Commander Burstall notices a considerable alteration in the low water above London Bridge in the previous twenty-four years, which he says is doubtless in consequence of the removal of the old structure in 1832. The longitudinal section shews a large hole partly under the site of the old bridge, and immediately to the east of the new, “filled up with the ruins of old London Bridge,” presenting apparently a very solid bottom for any building that would be added to the present structure,—not as an iron-bracketed outrigger, destructive to stability and architectural effect, but an addition, widening and strengthening it, without destroying it artistically, as has been done with Carlisle Bridge.

I trust you will pardon this lengthy letter, but the subject is one of national importance, alike as engrossing to the Irish as to the English architect; and, as one of the former, I would say Southwark Bridge should claim more attention as to construction at present time than any of the others.—Yours, &c.,

KILLYLEAGH.

Dublin, July 17th, 1879.

P.S.—The Giles family were good marine surveyors; they made a survey of the Liffey below bridge and bay of Dublin. Someone said they assisted old George Halpin with the architecture of Crab-Lake Wall. Such a statement is absurd; it would be the bellows-blower helping the organist.

## TESTING OF BRICKS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I will not follow the style of “Another Architect” in dealing with this matter—one of the last importance to our profession and to builders,—but refer to the simple facts. Upon examining a specimen of such bricks as I write about, it will be seen to have a very large proportion of yellow specs through it all—so abundant, indeed, as easily to attract the attention of an intelligent observer. This is “silicate of lime,” and can be detected and examined by an ordinary pocket lens. Under chemical analysis it cannot be so detected, for it then appears under the respective heads of silica and lime. These, however harmless viewed in this uncombined way, are a certain source of injury, and in fact fatal to the bricks, when appearing as “silicate of lime.” Silicate of lime will resist the action of muriatic acid, but rapidly decomposes when exposed to atmospheric or gaseous action, particularly in contact with warmth and moisture, as in

sewers, bridges, and exteriors of houses, and then the brick falls to pieces. It has fallen to pieces where it has been used in its own neighbourhood, and it has been condemned by architects and builders in the locality where it is known; but it seems to be quite good enough for acceptance in Government building, at some distance, and where it is now being used largely!

“Another Architect” rests his whole case upon the fact that “he is not aware of any form or combination of silicon that could be injurious to a brick;” but I would remind him that many professional people are “not aware” of many things they should know, and that ignorance cannot be used as an argument in such a case, or indeed in any case; but he may for the future know that there is, as a matter of fact, such a well-known “form or combination” as silicate of lime, and as another matter of fact as well as theory that such a “form or combination” is fatal to the existence of any brick in which it occurs to any extent.

Had the Royal Engineer, architect, or clerk of works, whose duty it was to shape the contract, or to see it executed, made local inquiry, he might have easily learned that—1st. These bricks had a bad local reputation; 2nd. That where they had been used in the faces of houses or arches of bridges, &c., the whole exterior had literally peeled off and crumbled to pieces. One thing is perfectly clear, that there is no proper test in use in Government departments as to the correct constituents of bricks; and next, that “Another Architect” is equally “not aware” of what he might know to his advantage and that of his clients.

AN ARCHITECT.

## THE BIRTH OF “THE INSTITUTE.”

TO THE EDITOR OF THE IRISH BUILDER.

“Eheu fugaces labuntur anni.”

—HORACE.

SIR,—I am too old a man to rush into print, which may be some excuse for not putting my name to this communication; but, old as I am, I can remember the gratification I experienced when honoured with a student’s invitation to the first meeting of architects (ever held in Ireland), at the house of Sir Richard Morrison, No. 10 Upper Gloucester-street. The young men of the present day may wish to know the names of those who attended; and the event being naturally impressed on my memory, I venture to give, with your permission, as many as I can recollect. But the meeting being on the 29th August, 1839—just 40 years ago—defects of that organ will be excusable. Well, then, we had Sir Richard Morrison (of course), Frederick Darley, Isaac Farrell, William Farrell, J. B. Keane, John Lonch, J. S. Mulvany, Wm. Murray, James Bolger, Parke Neville, George Papworth, John Semple, Sandham Symes, Arthur Taylor, and Joe Welland. Amongst the pupils who, like myself, were permitted to attend, we had Robert Peck, Joseph Maguire, J. Mosely, Hugh Carmichael, John Sloane, J. N. Johnstone, and F. Boardman. There may have been more, but this is, I think, a tolerably full and correct list. The object of the meeting, as described in the invitations, was the advancement of architecture and all its kindred arts and sciences. The engrossing subject was the competition for the Houses of Parliament; for although the award was given to design No. 64, by Mr. Barry, three years before, professional excitement had not at all cooled down, and there were several sketches of the building brought to the meeting, and a very elaborate drawing of the Reform Club, by the same architect. There were some beautiful drawings by Robert Peck, a pupil of Mr. Louch, who exhibited lithographs of the church at Harold’s Cross, and the Mariners’ Church at Kingstown, executed by the Allens, of Trinity-street, and interesting as specimens of that style of printing successfully produced in Dublin. There were also plans of the Savings Bank, Abbey-street, by Isaac Farrell. Fred Darley had some drawings of



Trinity Church, looking better on paper than in the sad reality, and the Papworths (father and son) sent plans for the Baptist Chapel at the corner of what was once intended to be Blenheim-street in Lower Abbey-street.

Sir Richard was most hospitable, and sent us youngsters away to the drawingroom early in the evening, where we had matter more congenial to our minds than the musty talk of the shop.

It was a nice house. I have not been in that part of the city for many years, and hear with regret that it has much gone down. Sir Richard shortly afterwards removed to Mount-street, and subsequently, at the request of his son William Vitruvius, to a house he built on the east side of St. Stephen's Green. The meeting of that evening bore good fruit, and until about 1854 things went on well. There were periodical meetings, somewhat irregular as to time and place, principally in Fitzwilliam-street, but, we had always a well-attended annual assemblage and dinner. From whatever cause, a change came o'er the spirit of the dream, and the Institute appears to be now "nowhere." There must be a considerable amount of valuable property belonging to it "somewhere," which should be looked after. The gatherings of its portfolios for forty years are not to be despised, and I sincerely hope that you, its *only* Press representative in this country, will agitate the question of its resuscitation.—Yours, &c.,

"ARCHITRAPEKS."

Merrion-square, 18th July, 1879.

[There were several papers among the proceedings of the first Institute of more than ordinary merit, and some of them would be well worthy of reproduction. If the "gatherings" of forty years still exist intact they are not the property of any private individual, for possession in his case would not constitute "nine points of the law," unless indeed the Institute is "as dead as a door nail." A new representative Institute or architectural body—should the resuscitation of the old prove impossible—will have a clear right to demand the collections of forty years, and also to expect fair replies to a number of fair questions in respect to other matters.—Ed. I. B.]

## NEW "IRELAND."

TO THE EDITOR OF THE IRISH BUILDER.

"Another comet has gone out, I think."  
—BYRON.

SIR,—Will you allow me to remark, astro-nomically, in your scientific journal that we have lost an infantile luminary? It proposed to be a literary, satirical, and humorous luminary, and, with such proclivities, can ill be spared in these serious times. An overdose of that novel and awfully jolly subject, the Clerk of the Weather, in two columns, proved its ruin; and so I beg you to allow me to express my feelings in an epitaph (from Westminster Abbey), not wholly original, but sufficiently so without being too sad all out:—

## SACRED TO THE MEMORY

OF  
A WEAKLY JOURNAL OF LITERARY, SATIRICAL,  
AND HUMOROUS LITERATURE,

Which, having lingered unappreciated for the small space of a fortnight,

Expired in the greatest pane of its publisher's window.

Afflictions sore small time it bore—

Physicians were in vain!

It could not sell, so down it fell,

And I hope we'll never see its like a-g-a-l-n!

"Not wit in itself, but the source of wit in others."

—ANON.

To me personally the matter is one of consequence, as I had in preparation for its pages an Historical View of Kilmainham, taken from my own hall-door, looking forwards towards the South Dublin Union, with Swift's Hospital in the background, and containing a list of the names of the primitive Christians

reposing in "Bully's Acre," with a recipe for making John's Well water,—all witty matters, of consequence to Ireland, and for which I expected the usual honorarium.—Yours, &c.,

WALTER COX, jun.

Rowserstown, Kilmainham,  
July 21st, 1879.

## CONCRETE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Although being much amused at the notes of "An Extraordinary Meeting" in your paper of the 15th inst., I must ask your permission to take objection to such a mixture for concrete as lime, Portland cement, liquorice-ball, and Vartry water. As to the two latter ingredients, not having tried them, I am not in a position to say anything about them (excepting that a respectable citizen—Mr. Gatchell—appears to be of opinion that the sooner we are rid of the Vartry the better); but I have no hesitation in saying that any architect who would attempt to combine ordinary lime with Portland cement could know but little of the chemistry of his profession. I am, of course, aware that the notes in question were merely a laughable squib; but there is many a true word spoken in jest, and I am under the impression that someone did somewhere advocate a mixture of lime with cement. I was led to try the experiment; and although I spoiled two good things, and, having waited three years, got a substance somewhat like brown sugar for my pains, I benefited by the experience, and won't try it again, and would wish to caution all young architects against such senile practices. If I meet with anyone who has tried the liquorice-ball, I will let you know.—Yours, &c.,

T-SQUARE, C.E.

Abbey Chambers, July 18th, 1879.

## THE RISE AND FALL OF "JERRY."

"Jerry" built with rotten "bats"

From rook'ries razed in town;  
His house was soon a home for rats,  
And inmates stricken down.  
The doctor came day after day,  
And undertakers knew  
That coffin-building proved to pay,  
And coffin-making too.

Another "Jerry" took the hint,  
And leased a bit of land;  
And while he built his huts asquint,  
He dug out straight the sand.  
The bricks went up in verdant mud,  
The walls bulged out,—but then  
The huts, I know, till auction'd, stood,  
Then took to killing men.

And still another "Jerry" rose,  
Ambitious to excel;  
He covered acres, till some blows  
From critics made him yell.  
He built and sold and sold and built,  
Lost nothing, yet could fail;  
I cannot tell you all his guilt:  
Enough—he's now in jail!

In ancient Rome, the builder who  
Would fail to guarantee  
His work, was whipped and shaven too,  
And banished o'er the sea.  
Let's try a kindred punishment,  
And at the cart-tail tight  
Scourge "Jerry" through the town's extent,  
As a deterrent sight!

Royal College of Science,  
St. Stephen's-green.

JACK PLANE.

## THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

THE Council of this incorporated Society have awarded the following premiums for some of the original communications submitted during the past session, on account of the science, talent, or industry displayed in the consideration of the several subjects dealt with:—

*For papers read at the ordinary meetings.*—Watt Medal and Telford Premium to G. F. Deacon, for "Street Carriageway Pavements;" Telford Medal and Telford Premium to J. B. Mackenzie, for "The Avonmouth Dock;" Watt Medal and Telford Premium to J. N. Douglass, for "The Electric Light applied to Lighthouse Illumination;" Telford Medal and Telford Premium to A. F. Blandy, for "Dock Gates;" Telford Premium to E. Dobson, for "The Geelong Water Supply, Victoria, Australia;" Telford Premium to James Price, for "Movable Bridges;" Telford Premium to J. E. Williams, for "The Whitehaven Harbour and Dock Works;" Manby Premium to J. P. Griffith, for "The Improvement of the Bar of Dublin Harbour by Artificial Scour."

*For papers printed in the Proceedings without being discussed.*—Watt Medal and Telford Premium to G. W. Sutcliffe, for "Machinery for the Production and Transmission of Motion in the large Factories of East Lancashire and West Yorkshire;" Watt Medal and Telford Premium to E. Sang, for "A Search for the Optimum System of Wheel Teeth;" Telford Premium to W. G. Laws, for "The Railway Bridge over the River Tyne at Wylam, Northumberland;" Telford Premium to G. Higgin, for "Experiments on the Filtration of Water, with some Remarks on the Composition of the Water of the River Plate."

*Miller Prizes for papers read at the supplemental meetings of students, to*—A. C. Hurtzig, for "The Tidal Wave in the River Humber;" R. H. Read, for "The Construction of Locomotive Boilers;" J. C. Mackay, for "The Excavating of a Tunnel in Rock by Hand Labour and Machinery;" P. W. Britton, for "The Design and Construction of Wrought-iron Tied Arches."

## HOUSE REGISTRATION.

REFERRING to a correspondence between the Right Hon. James Stansfield and Mr. C. N. Cresswell, and which we printed in a former issue, Mr. F. H. McLaughlan discusses in a communication to the Society of Arts, the proposal put forward for organising a "Sanitary Inspection Department." He writes:—

As the success of the proposal would greatly depend on information obtained by inspection and inquiry, the method in which these are made would materially affect the result. I do not know whether Mr. Cresswell contemplates compulsory inspection; that might be possible in the case of buildings in course of erection, but it would hardly be effective where houses are undergoing partial repair, on account of the irritation it might cause to both owners and occupiers (whose respective interests, by the way, do not always coincide). From personal experience in several instances of house-to-house inquiry, and inspection in matters somewhat akin to those now contemplated, I feel sure that facts may be elicited more readily, whether from the rich or the poor, by compulsory inspection; and in saying this I do not except the most degraded parts of London. There should, of course, be proper authorisation to inquire and (if the occupier be willing) to inspect premises. This will, I feel certain, be the means of obtaining the greatest amount of information with the least annoyance. Actual inspection in sanitary matters is frequently impossible without unreasonable discomfort to occupiers and cost to somebody, because it is the custom to put drains, cisterns, water-pipes, gas-pipes, &c., in inaccessible places. A question naturally follows, how can a certificate be given on information which may be incorrect? Some one, perhaps, may solve the difficulty. The reliability of information given in answer to inquiries, I believe to be greater than most people might suppose, and though interested motives will frequently warp the truth, this is often, in house-to-house inquiry, open to detection and correction. Mr. Cresswell apparently limits the granting of certificates to new houses, or those which have been repaired, but it seems to me that it ought to be within the scope of inquiry to include, if need be, adjoining houses, as it is quite possible for the insanitary condition of one house to be due to the adjoining house, even to its approved sanitary appliances; and the most satisfactory mode of collecting information would include a whole block of houses at once.



## BOOKS RECEIVED.

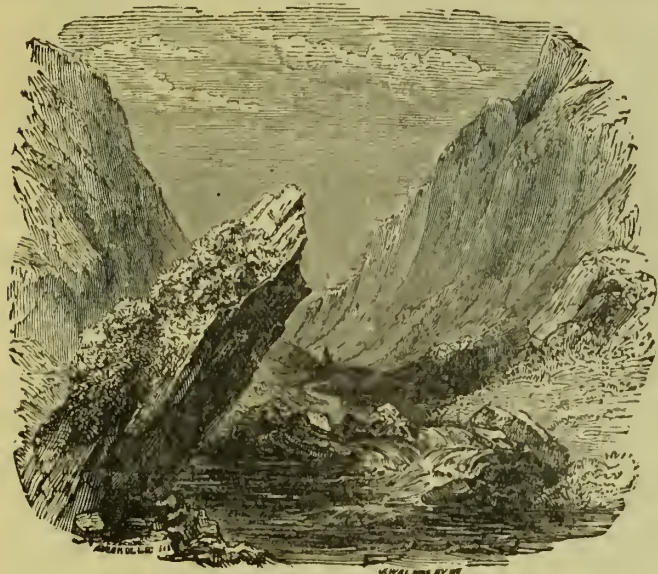
*Outlines of Geology, and Geological Notes of Ireland, &c.* By William Hughes. Third Edition. Dublin: M. H. Gill and Son, Upper Sackville-street; W. H. Smith and Son, Middle Abbey-street. 1879.

It is refreshing to meet with a work like this issuing from our metropolitan Press, compact, readable, neither tiresome from its weight of material nor its verbosity, the subject inte-

alludes to the nomenclature due to Sir Charles Lyell; and although the English language may be wanting in expression, words of Greek derivation are not sufficient to scare the general public from pursuing this or any other science. For our own part we have ever considered root words as a great help in investigating and an assistance to memory. He instances the divisions of the Azoic, Palæozoic, and in like manner the Triassic, Jurassic, &c., periods.

often stood in amaze looking at the numerous quarries of Galway, particularly in the neighbourhood of Oughterard, where, if easy access to the water carriage of Lough Corrib were available, mines of inexhaustible wealth would be made accessible."

It is this paucity of carriage that does much of the mischief, and keeps idle the grand red granite quarries of Blacksod, and the scatites and serpentines of Donegal out of the market.



The Gap of Dunloe.



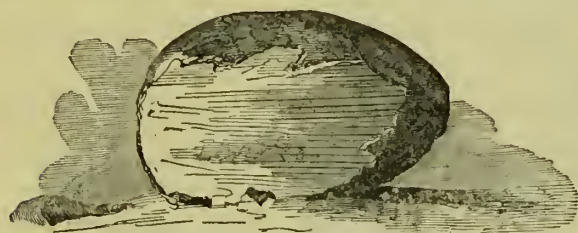
The Giant's Organ.

resting and interestingly treated. Well we remember choosing the banks of the Royal Canal between Clarke's and Jones's bridges as a quiet place to read our Lyell or Lardner. What would we have given at the time to

The author, without being intrusively patriotic, refers to the importation of marbles to Ireland (we had some time ago to draw attention to the bringing of Cornish granite to Cork and Dublin\*), and

says:—"But unfortunately for the country, foreign marbles are to be had in abundance, while the native material cannot generally be obtained manufactured." He then quotes Sir Robert Kane's "Industrial Resources" as to the many localities in which beautiful specimens may be had, from the Kilkenny black, the varied coloured Kerry and Galway, to the white of Connemara and

Our author leaves none of the native stones unnoticed, and whilst referring to them gives illustrations of their localities, a few of which we reproduce. Thus, in his description of



Striated and Polished Boulder, Slieve League, Donegal.

have met such a "royal road" as is here presented!

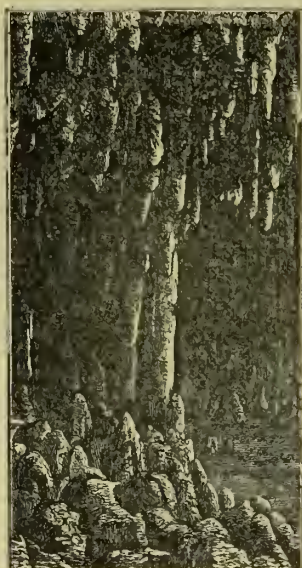
It is, of course, hardly possible in discouraging of a science—not old, but old enough to have been pretty well investigated—to

Donegal. On this subject we often shared with the author the very natural surprise at what appeared to us a second edition of bringing coals to Newcastle, and can well indorse his statement that "large quantities

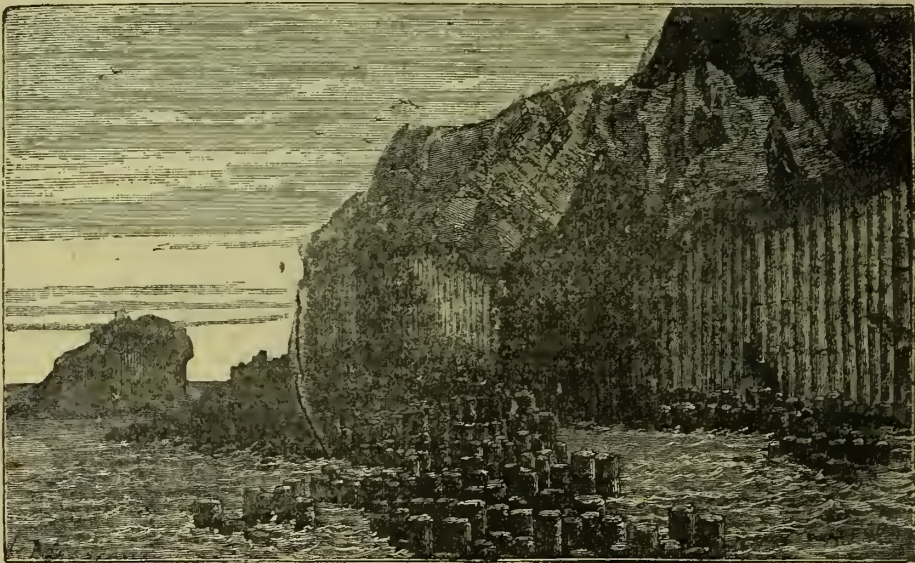


Erratic Rock, Mourne Mountains.

the limestone formation, he carries his reader in imagination to the caverns of Mitchels-town, and the Stalactite and Stalagmite of Ardsallus River, in the County Clare, whilst



Stalagmite and Stalagmite, Ardsallus, Clare.



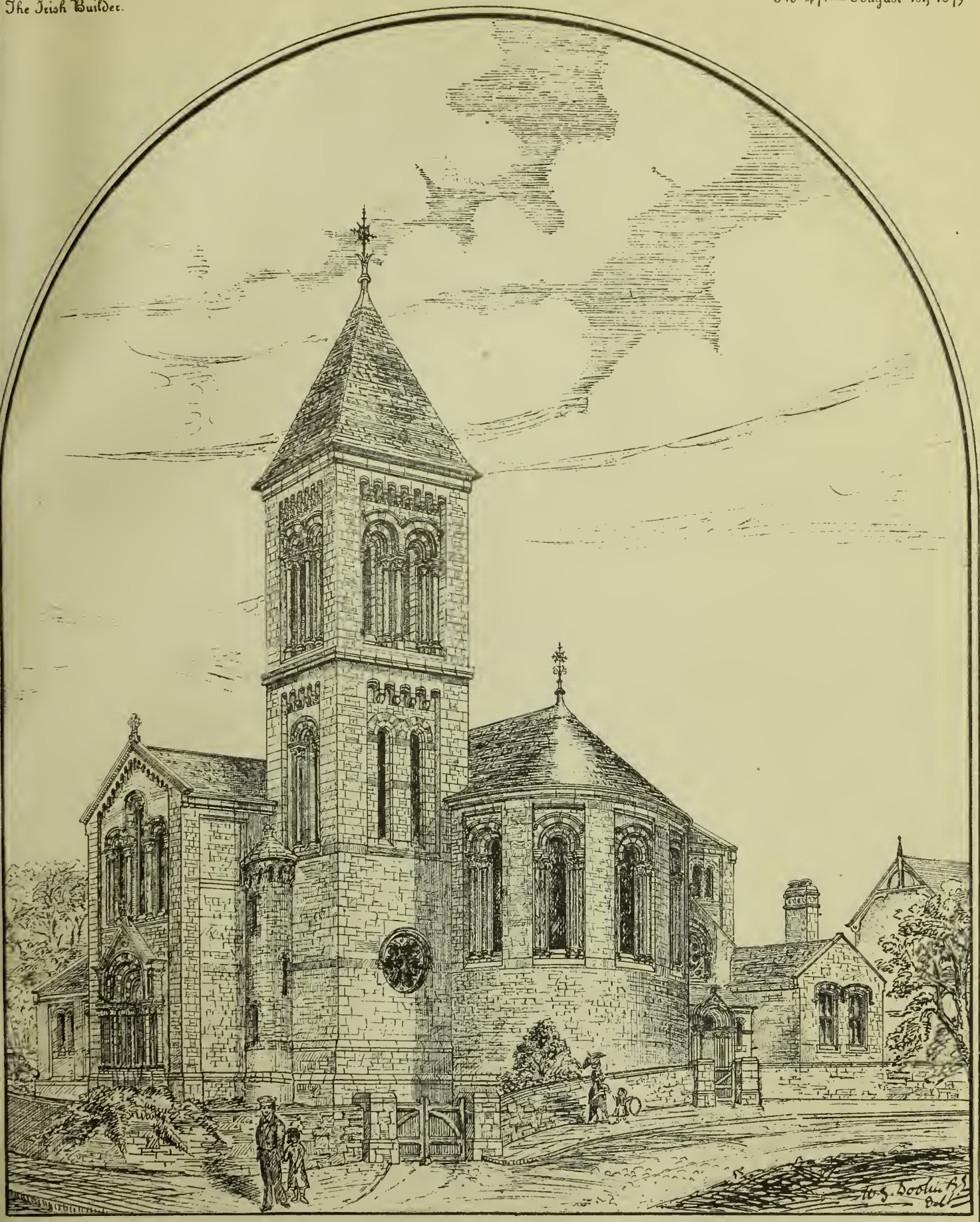
Fingal's Cave, Staffa.

introduce much that is new; but the charm here lies in imparting to all that is true, though not new, a newness of expression, a novelty in administering the scientific and salutary dose. The author in his preface

of continental marbles are annually imported into Ireland, many of them very inferior to what can be produced at home. We have

further on a choice engraving leads them to the Giant's Organ at the Causeway, a remarkable specimen of Columnar Basalt, with its counterpart at the Island of Staffa. We may conclude by saying that, as a class book,





• CATHOLIC • CHURCH • HOWTH •

• W • G • DOOLIN • B • E • ARCHT • •



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guide, and most convenient epitome, it is all that could be desired. To the next edition we would suggest an index.

*An Improved System of Book-keeping for Builders and Contractors.*—Mr. H. C. Bevis is the author of an exceedingly useful book which we can confidently recommend to our readers in the above branches. The necessity (more particularly at the present time) of having books so arranged that at a glance a trader may see the state of his affairs, cannot be too strongly and persistently advocated. The bi-weekly *Gazette* chronicles the bankruptcy of many builders and others who, perhaps, had they timely adopted the author's system for keeping a daily record of their business transactions, would have been saved the exposure of passing through the Bankrupt Court. The various forms of account-books are shown in this useful handy-book, which we are glad to find has reached a second edition. See advertisement on another page.

### INDUSTRIAL EXHIBITION AT WESTMINSTER.

THE Earl of Beaconsfield, in distributing the prizes on the 12th ult. to the successful exhibitors at above, delivered an address, which we print below. It will be found instructive and interesting to many of our readers. The prizes consisted of 3 gold, 63 silver, and 150 bronze medals:—

I understand that the initial idea of this exhibition was a limited, though a most laudable one. It was to appeal to the working classes, to give them an opportunity of ascertaining whether, instead of wasting their time in idle dissipation and in pursuing a perilous course, they might not occupy and amuse themselves in an interesting and agreeable manner, and that by practising their ingenuity in the creation of many articles and objects of universal use and of very general satisfaction and pleasure. The fact is that there is a great deal of vice which really is sheer inadvertence, and there are many who pursue a course which cannot be commended, merely because an opportunity is not given them of following one which is laudable, and which they will find conducive to their content and happiness. But I must remind you of this, for it has struck me very much, that while we acknowledge the success which has followed our original purpose—and the proof of it is at hand in the number, in the very increased number, of exhibitors in this assemblage—it proves also something else, that though you may originally have been satisfied with the occupations that were interesting and laudable, still, you have now advanced to this point, that you exhibit to excel and to invent. This is one of those laws of progress and development which are irresistible, for emulation is always connected with society. You must understand, therefore, now that you have advanced so much in your progress, that from merely aspiring originally to find a harmless means of amusement and occupation, you have come forward as inventors and as claimants of public approbation. You must understand, however, that, under those circumstances, another new principle is introduced into your life. That principle is criticism. There is no doubt that you have had the advantage of critics in your admirable judges who are experts of all those arts and sciences which you are now practising. And you have, therefore, the advantage of that criticism which is necessary in your more advanced and extended efforts. I need not recall the names of those gentlemen. They are known as experts in all the branches in which they have given you advice, and on which they have afforded you their judgment, though I cannot help adverting to the name of one of them, your vice-chairman, Mr.

Seddon, who has devoted so much time and thought and taste to your advantage. Well, then, having acknowledged that criticism is now an element of the institution which you have established, you must bear with the remarks which have been made for your profit by your excellent judges.

You will have learnt by this time that it is not enough now merely to show great ingenuity in the production of some particular article, but you must also learn that it is by a knowledge of right principles of art or of science that you might probably, with much less ingenuity and with much greater facility, have arrived at the same result in a more complete manner. I was very much struck with this fact while I looked over the report upon the musical instruments. It is there quite evident on very high authority that there is ability in this town and in the contributors to this exhibition which might carry on a very profitable and highly praiseworthy trade in musical instruments, and yet it is equally clear that among the contributors to that department, though most remarkable for their ingenuity and able technical skill, there have been instances where they have failed in obtaining the highest object merely from some deficiency of knowledge of science. I will not mention several cases, but there is one that interested me—that of Mr. Goswell (who is stated in the judges' report to be a blacksmith), who has formed two beautiful instruments, violins, of metal which I remarked during my too rapid visit here as admirable in point of workmanship, but which have not obtained the high prize which they would have otherwise secured, because, dealing with a material not adapted in the highest degree to obtain the object which he desired, he did not then recognise that wood has a vibrating power that metal can never equal; but his effort was admirable, and whenever I think of him I shall remember the celebrated work of Handel, "The Harmonious Blacksmith," and I think that is a title which he has well earned.

There are many instances also in this exhibition which, were it not too long, would illustrate the point which I wish to place before you. But there is one point of very great importance which must be impressed upon your attention more and more as you advance in this proceeding, and that is the necessity of cultivating technical skill. Now, it is very curious in this exhibition, where you would expect that the vast majority of the articles exhibited would be of a mechanical kind, that although this exhibition is rich in articles of a mechanical kind—I think between 500 and 600 are under this roof—still, those of an artistic character equal them in number. Now, those who are pursuing works of art—and it is a very satisfactory circumstance, on which we ought to congratulate ourselves, that there is an instinct among the great body of the people for the fine arts—those who pursue the fine arts have in this country, though not sufficiently in this capital, schools of design which may assist them. I think it is to be lamented that in this great capital the schools of design should be so few; but, generally speaking, they have been scattered all over the country, and they receive Government assistance. That is not the case with the technical arts—the technical education, which may fairly be defined as education in useful arts; there are no institutions in this country to assist those who have a predisposition for performances of that kind, and this is much to be regretted. Of old when there were guilds and a system of apprenticeship, that want was supplied. Unquestionably guilds and systems of apprenticeship are not adapted to the manners of this age; but, in allowing them to become obsolete or in terminating them, society and the State have made a great mistake in not affording at the same time a substitute for them. At the present moment there is a very general—a very prevalent—feeling in this country that some effort should be made by which technical education could be secured, and I have seen with great pleasure that the City Companies have felt that they could not more wisely or

more beneficially expend some portion of their considerable wealth, than in cultivating that technical skill and securing that technical education which, in fact, is prominently connected with our origin and duty. But it is a great mistake to suppose, if there are any who indulge in the idea, that principles which are applicable to the fine arts are not—though they may not be in the same degree—applicable to arts of utility. The same appositeness is necessary, the same fitness and finish; and what is most important, both in the fine arts and in arts of design, is that the best material should be used. I feel, therefore, that if an institution like the present—I will treat it as an institution—is to be sustained and nourished, the attention of the working classes must be called to technical education; the greatest inducement must be given to them to complete that education, and to understand that in the best material and in the best workmanship they alone can maintain that superiority which was once, and I hope will be again, the pride of this country. But at the same time I do not wish it to be supposed that I look on that excellence to be merely mechanical. Whether they be arts of utility, or arts of design, it is impossible to attain excellence unless there is feeling; and however skilful may be the manipulation, without feeling you will not accomplish your purpose. There may be taste and even genius in the fancy of a button or the construction of a buckle.

Let me, before I present these medals to my friends—let us take, before I sit down, a general view of our situation. We have this year 2,000 exhibitors; we have a remarkable demonstration of feeling for the fine arts in as many of such articles being sent to this exhibition as there are of those mechanical productions which might have been supposed, as a matter of course, would have taken entirely the lead under that head. Let me remind you once more with regard to these works of art that though you must court criticism you must not be daunted by it. There are some works in this exhibition which indicate a very fine feeling, and even a predisposition for the fine arts. Let me remind you of this, that one of the greatest of English artists, one whose fame after many years ranks still high, was once as one of yourselves. It was when Sir Francis Chantrey was carving a common piece of furniture that attention was drawn to his work by a connoisseur of great fortune and great taste and skill. He opened to him a great career. He enabled Sir Francis Chantrey to make a great fortune and a great fame. He is now well remembered, but there are many of you who when you pass through many a gallery stop before his works, and admire them, without knowing, perhaps, that Chantrey was one of yourselves. Now, that being the state of the case, let us see what chance, what prospect we have of this institution lasting. This institution, and all institutions of this kind, cannot be stationary—either it will disappear or it will progress. Last year it was almost a parochial exhibition; this year, supported by the Dean, I think we may say it is a civic one. Let us look forward to the time when it will be an exhibition supported and visited by the whole population of this, the greatest and busiest of cities. I cannot believe but that those who have visited it must be struck by one great result. Some may disparage the general character of our work, but I think unjustly; some may say "You have not yet, in the two years which you have finished, produced a genius," which is always a very rare character; but I think no one can deny this, and all thoughtful persons who have visited this exhibition, and who have studied with any care the elements which form it, must feel, that here is a reserve of ingenuity and talent now generally-speaking untrained, of which the world was no doubt unconscious, but which must be, I believe, a source of welfare and of wealth to this country. This being my general view upon this question, I need not say that I personally take the greatest interest in the success of this exhibition.



## A NEGLECTED PUBLIC LIBRARY.

ADJOINING St. Patrick's Cathedral, or what in bygone days formed part of the gardens surrounding the old archiepiscopal palace, but which is now the centre of a district of much squalor and misery, stands Marsh's Library. Founded close on two centuries ago, its history is replete with interest, and it is to be regretted that, in these days of culture and enlightenment, its manifold advantages are not more largely availed of, but it is still more to be lamented that the fabric in which so much rare treasures are gathered is not kept in proper and befitting repair. The founder of the institution (Dr. Narcissus Marsh), whose tomb is to be seen in St. Patrick's churchyard, was Archbishop of Dublin from 1694 till 1702. While Principal of St. Alban's Hall, Oxford, Provost of Trinity College, Bishop of Ferns and Leighlin, and Archbishop of Cashel, he had brought together a very valuable collection of books and manuscripts, which was increased in 1689 by the purchase of Bishop Stillingfleet's books. The Palace (now Kevin-street Police barracks) affording insufficient accommodation for a library of such dimensions, the archbishop had the present building erected, and subsequently endowed it as a public library, the admission to which should be gratuitous and without religious distinction. The governors, who were appointed by the 6th Anne, cap. 19 (an act of the Irish Parliament), are the archbishops of Armagh and Dublin, the Dean of St. Patrick's, the Provost of T.C.D., the Lord Chancellor, the two Lords Chief Justice, and the Lord Chief Baron. Since the demise of the founder the library has been added to by the collection of the first librarian, the Rev. Elias Brouncker, M.D., a Huguenot, and (in 1745) by about 3,000 vols. presented by Bishop Stearne. It now contains over 17,000 printed works, and about 100 manuscripts, and these comprise copies of the Bible in all the ancient languages, the Greek and Latin fathers, the Councils, and the best productions of the old controversial and historical writers. Until about half a century ago the reading-room of the institution was largely resorted to, and we have evidence from notes in several of the books that they were used by successive prelates of the Church and by the deans of St. Patrick's. An old history of Scotland bears, in the unmistakable handwriting, several hard hits at his enemies the Scots and Presbyterians; while a controversial work of the sixteenth century is enhanced in value by the original notes, in beautiful calligraphy, of Archbishop Laud. These notes, it is said, demonstrate that the great archbishop, in place of favouring the Roman Catholics, as the Cromwellians charged, was actually preparing for combat with them. There is scarcely a shelf on which are not to be found some interesting records. How is it, then, that such an institution is now almost deserted? That is a question which it would be difficult to answer; but surely, pending a revival of interest in the old collection or the obtaining of a further endowment which would admit of the introduction of modern books to popularise the library, the building itself should be kept in repair. When the late Sir Benjamin Lee Guinness was engaged in the restoration of St. Patrick's Cathedral his attention was directed to Marsh's Library, which then (in 1860) presented a very ruinous appearance. Discovering that a donation of books had been made to it by Archbishop Smith, who was connected with his family, he became interested in its fortunes, and, finally, in February, 1862, undertook to put the fabric into thorough repair. It was almost rebuilt—a new entrance constructed; and Sir Benjamin's munificence did not stop there. He transferred to the governors £1,000 (Government Three per Cents), the annual dividends from which he directed should be applied—£20 in binding and £10 in aid of the original foundation. A good few years have elapsed since the building was handed over by its restorer to the governors; but, if we are rightly informed, nothing has been done in the meanwhile to maintain its fabric. Plasterwork, woodwork, and paint won't last for ever, and the consequences of neglect are already apparent in slates missing from the roof and water making its appearance on the main building. Everyone knows how injurious damp, much less rain, is to books; and the fact that the collection here is comprised, for the most part, of old volumes, renders it the more delicate. Surely then the governors or the librarian will interfere, and by the timely expenditure of a few pounds save what is worth many hundreds of pounds from destruction. The governors we have already named, but they have had no meeting since the 10th of October, 1878, when the entire body was represented, as on the occasion of the preceding meeting a year before, by the Dean of St. Patrick's. In fact there has been no assembly of the governors since June, 1872, when the present librarian (the Rev. Dr. Maturin) was appointed. The salary attaching to the librarianship is about £190 net,

but the 16th section of the act of Anne directs that that should be charged with the necessary repairs of the building, while an earlier section of the same act names £150 as the actual salary. Having directed attention to the present untoward condition of things, we would only add that visitors to the library will, under the guidance of the assistant librarian (Dr. R. Travers), who has been acquainted with the collection of books for over half a century, find much to interest, enlighten, and amuse them. —*Express*.

The Rev. James Graves writes:—"The building contains, besides a large library of printed books, a collection of MSS. Permit me to add that many of those relate specially to Ireland. Amongst others, the so-called 'Liber Kilkenniensis' is an unique manuscript, containing most valuable contributions to ancient Irish hagiology. If the governors have no power to apply funds to the necessary repairs, they may be blameless in the matter; but I am sure if they have the means, they will not longer allow this invaluable free library to be injured by the insecurity resulting from the decay of the building in which it is housed."

## I WANT MY CHE—ILD.

"Where are you, M'Evoy?"

—*Cry of the Kellic mother.*

Monday after Monday, windy citizens are meeting

In their hall of oratory, their chief, their weekly joy,  
Caring little for the waste of cash and hours fleeting—

Where are you, M'Evoy?

What about the gas, or the statue to O'Connell,

Or the pavements of wood or stone with which they like to toy,  
Or the Convalescent Home, so recommended by M'Donnell?—

Where are you, M'Evoy?

Kirby's trenchant letters from Cuffe-street fall unheeded

On Corporation cuticle, tanned with apathy, my boy;  
And Gatchell recommends better water, and we need it—

Where are you, M'Evoy?

What is Finlay up to,—has the rain damped his spirits?

Why silent is M'Dermott? Has Tarpey lost his joy?  
Is the drainage of the city to rest upon its merits?

Where are you, M'Evoy?

Are the walking-sticks in Sackville-street to ever bear green leaves?

Will traction engines be allowed quiet people to annoy?  
High pressure on suburban gas, my purse and pocket grieves.—

Where are you, M'Evoy?

What about the Land Bill and going to Westminster  
(A romance worthy of the pen of Mistress Cashel Hoey),  
The burgesses, and soapy John, and the Lady Mayoress,  
spinster?

Are you there, M'Evoy?

Don't imagine, honest Johnny, that we will so tamely lose you;  
You're not as yet in clover, or like a salmon in the Moy;  
You will have to give attendance late and early, if we choose  
you.—

Mind that, M'Evoy!

Rus-in-Urbe, 23rd July, 1879.

Σ.

## BAD BUILDING, AND SOME OF THE CONSEQUENCES.

ALTHOUGH several local boards are greatly remiss in their duties in the suburbs of London and in the provincial districts, there are a few bodies honestly doing their duties in enforcing the provisions of the Building and Sanitary Acts. On Monday week three "Jerry" builders were summoned before the magistrates at Edmonton. The report states that:—

James Wheeler, a builder was summoned at the instance of the Tottenham Local Board, for wilfully using certain mortar in the erection of new buildings in Templeton-road which had not been approved of by the Local Board. The surveyor to the Board produced samples of the mortar used, which he had taken from the joints of the brickwork, in the presence of defendant, and which mortar was utterly unfit for the purpose, and contained straw, shavings, feathers, grass, and other materials of rubbish! Mr. Fowler, solicitor for defendant, submitted that the surveyor to the estate had passed the mortar, and that was sufficient, as large advances were made to defendant as builder of the houses. The magistrates fined defendant £5, and there being seven other houses built with similar mortar, the like fine was inflicted for each house, making altogether £40 with costs. Another builder for a similar offence with respect to four houses in Tewkesbury-road, was fined £5 for each house, making a total of £20; whilst a third one, with respect to a house in Templeton-

road, was also fined £5. In default of payment of each penalty, a term of 14 days' imprisonment was ordered.

The Local Board have since resolved to take further steps in the matter, and doubtless they will be successful. In the east and north-east of London, and indeed in other suburban districts, a large amount of "Jerry" building has been going on for several years, and "scamping" fraternities have gained an immunity. We read of houses constantly tumbling from bad construction, the materials and the workmanship being of the worst possible description. Fatal accidents are common through houses falling, but even where they do not fall immediately, consequences as bad ensue by the constant illness of the occupiers of such houses. The drains of this class of houses are often of the most make-believe character, and as a whole these dwellings might be fitly termed death houses, for they are unhealthy from basement to attic through their vile construction.

Here in Dublin, however, as well as in the London suburbs, speculative builders are allowed to build as they please, for we have been unable to detect any supervision over their operations on the part of the Corporation or the township authorities. In the North Circular-road and Drumcondra and Glasnevin district there has been and still continues a large amount of speculative building operations. The worthy engineer of the township board could advise the board to put the act in operation, and it is the obvious duty of the Drumcondra Township authorities to take steps with a view of stopping or controlling the unprincipled building practices carried on in the locality. It is not long since we witnessed building malpractices on the part of a representative of one of our public bodies. When members and ex-members of our municipal and township bodies are allowed to act their own "Jerry" builders, and put up houses that are a disgrace to Dublin and a libel on building, no wonder need be expressed that illness is rife and the death-rate is high. Although a professional journal representing architecture and building interests, we shall never (as we have never) connive at bad building. It is a patent and lamentable fact that the local authorities are not doing their duty. We are quite willing to admit that there are some difficulties in the way, and they have not sufficient powers to do all that is requisite; but what powers they do possess in a sanitary direction, if enforced, would greatly mitigate the evils and control the rampant abuses of low-class speculative building. Another fact in this city is worth noticing. We do not know one medical man in our midst who has raised his voice against bad new buildings, although some literary medical critics there are who are not forgetful of reminding the Dublin and the London public that our city has a large number of old houses or fever dens that ought to be pulled down by the corporation. There will be little benefit achieved by pulling down old nuisances if the erection of new nuisances continues to be permitted.

Let our architects, medical practitioners, lawyers, churchmen, and local board representatives, one and all, protest against bad building and bad drainage. We want houses that our people can live in—houses in which health is possible, and to which doctors' visits shall be rare. Good building and good drainage, pure air and pure water, is the very best form of prescription; it is preventive medicine—a medicine that wards off almost all disease. Let our doctors preach it, and our rulers general and local act up to it, and the public health will very seldom be endangered.

WOOD PAVEMENT.—The Town Council of Sheffield have been making experiments in various streets of the town for the purpose of testing the endurance of wood pavement. The result is that wood is being adopted in centre thoroughfares on the level, but its use is condemned on inclines, and where there is exceptionally heavy traffic.



# SUGGESTIONS FOR YOUNG BUILDERS.

THE term architect being derived from *archi*, chief, and *tecton*, a builder, we consider the term "young builders" preferable to young architects, our suggestions being all intended to benefit persons before they become chief in anything, but who, being on the road to arrive in time at mastership in and out of their profession, may be glad to avail themselves of assistance less easily obtainable, because of its very elementary nature, than in the more advanced stages of their apprenticeship or pupilage.

For a length of time past we have noticed the number of questions addressed to ourselves and contemporary journals by beginners in architectural practice, many of them of such a nature that we would be disposed to question the querists' sanity or capacity for knowledge; but on reflecting a little, we could not come to other conclusion than that in many cases a lad is placed in an office where there is perhaps one or two more only as ignorant as himself, the master having too much to do to attend to such young fledgelings, whose duties in the way of copying specifications, making tracings, and occasionally attending to assist in measurements, leaves them no alternative but to fly to the columns of the class or scientific journals. They are provided with drawing-boards, squares, colours, instruments, &c., in fact all they want, but who is to give them any information as to how these are produced or the best way of procuring them? It is from these reasons that we so often see questions that we may probably consider so simple as not to be worth a thought, but nevertheless of great importance to the beginner. He may find in his master's library information as to how to draw the five Orders, but may look in vain for how to lay down the paper on which to make the copy. He wishes to study at home, and to buy a sheet of drawing paper, he does not know what to ask for. This was our own case when purchasing our first sheet of paper from Thomas Cranfield, in the commercial mart in Sackville-street, where, about the year 1837, he had a counter. We remember his good-natured instructions as to Whatman's "double-elephant" which we have never forgotten.

"What," says a student, "is cuttle-fish bone, what is it used for, and where am I to get it?" Another asks "What is dextrine, and why is it called so, and if it is not a good thing with which to paste tracings on linen?" Then A. B. or C. D. asks "What is a centrolinead, and can he get it in small quantities like black lead?" and so on. As they progress farther their fancies take a higher flight, and they wish to test bricks, and make tracing paper, and water colours, and varnish pictures, and do all sorts of things to their own confusion and the perplexity of their much-to-be-pitied parents and guardians. We knew two young architects to attempt making gunpowder (not a hundred miles from St. George's Church); they borrowed an iron mortar from a neighbouring and friendly apothecary. The ingredients were in the mortar, and they were proceeding very much to their liking, when a gamin passed through the kitchen where they were at work; sneeringly the imp asked what they were doing; they replied, making gunpowder; he said, "ga lang, that gunpowder!" and snuffing the candle he was carrying with his fingers, threw the blazing snuff into the mortar! The experimenters have ever been oblivious of what followed; but by some lucky accident no advertisement was required in "Stewart's Telegraphic Dispatch," of next morning, with the magical letters R.I.P., nor were friends asked to accept the intimation! Of course making gunpowder is no part of an architect's practice, but we relate this fact merely to illustrate the enquiring winds possessed by young gentlemen who enter the profession.

"Ab uno disce omnes."

However, to begin our hints or suggestions, there are many matters in the daily routine

of an architect's office that have to be attended to by the pupil, and which he will often get orders to attend to. If he displays ignorance he will probably be called a fool; if he says he thought so and so, he will be asked who gave him leave to think, and so on. Well, to begin at the beginning,—transfer paper is always useful, and used in some offices more than others; it is not to be bought, and so must be made—it is a dirty job, and should be undertaken by the youngest apprentice. Occasionally, there is a Tom Pinch, or office drudge, to do such work; but whether or no, the apprentice should, for his own sake know how to do everything pertaining even remotely to the profession. Let him proceed as follows, viz., procure either black lead, such as housemaids use, or red chalk, such as saddlers and harness-makers use,—in Ireland at the druggists, in England at the hardware or oil shops. Scrape either with an old knife or razor blade stuck in a handle of his own contrivance. When he has enough scraped, pass it through some muslin, and put it into a coarse flannel bag (the servant will show him how she makes a "blne bag"), then get the largest tissue paper made, and proceed to rub the bag over it, the fine particles of chalk or lead coming through the flannel on a smooth table or old drawing-board, an antiquarian board 53 by 31 will do very well. When the paper is all of the same tone or colour, black or red, as the case may be, proceed with another piece of flannel to polish it, and when you think it is done enough, lay it on a sheet of clean white paper, colour side down, and slap it smartly with your open palm. Should it "set-off" (to use a technical term amongst printers), you must polish again until it is hard; the best tracing tool to use with such papers is a 5 H pencil. Tracing paper is easily made in a rough way; in Ireland and Scotland one may be reduced to great shifts, for the simplest and humblest of drawing materials. England is not so badly off, but in the agricultural districts one might look in vain for many a town and village for a sheet of tracing paper; in how many towns in Ireland could you get such a thing? But in every town there is a doctor, or something of the kind, and a shop where tissue paper is to be had for doing up the grates in summer time. Well, then, from these sources procure in whatever way you can, common turpentine (the worse the better) and Canada balsam, it will readily dissolve in the turpentine. With a clean sash tool No. 3 or 4 give your tissue paper, sheet by sheet, a coat of the mixture, 2 parts of balsam to 5 of turpentine, and hang up across a line to dry, in some place where there is as little dust as possible; it will be ready for use next day.

Never go without at least one spare pencil and penknife. We were once in a bog in County Westmeath, our only pencil gave up the ghost. We had about an hour's work to do, and the nearest town was Mullingar, many miles off. We were in a fix; one of our chain men had a stump of pencil, but we had no knife, and so had to pare the pencil with our teeth, i.e., bite away the timber, that was in 1845. Since then no one has ever known us depending on one pencil or one penknife.

The best drawing paper for every purpose in an architect's office is Whatman's hot-pressed double-elephant, 40 by 27 in.; machine-made paper can be had a trifle cheaper, but to use it is false economy; the half-sheet is an agreeable size to use, and for anything larger than the whole, we would recommend antiquarian. As this may not always be had conveniently, two sheets of double-elephant can be joined by pasting. The best way to do this is to split the edges of each for about an inch in width. You must have a keen penknife so as to cut the paper but half through, then with your nail or with the blade divide the tissue and tear it gently in the direction of the cut; this done, place the two raw laps together, and join them with starch on an even table and press them with plenty of books, the best and readiest domestic weights; if well done, the joint will

be all but imperceptible, and no inconvenience to drawing or colouring. Super-royal is half the size of double-elephant, but as the latter serves all purposes there is no occasion to encumber an office with more paper than is necessary.

Much absurd nonsense is talked about Indian ink, and a great deal of worthless trash is brought home from the West Indies. The best ink is made in London, it is profusely gilt, with an odd letter or hieroglyphic in blue verditer. Very large octagonal and other cakes of it are sent out to China and Japan, with paper machè goods and other curios, for home importation; as the Killarney bog oak and arbutus ornaments are sent to Ireland from Birmingham. But the young architect can get good Indian ink in any respectable artists' warehouse. It has a respectable gravity without being heavy, is of a sooty or brownish black, and rubs up smoothly. The sham ink is rarely gilt, it has a cindry lightness, rubs up scratchy and with a greenish gray tinge. Don't trouble your head as to where the good ink is made; remember the man who said, "let them say what they like about logwood, &c., I like a glass of good old London port." One does not care whether Indian yellow comes from India (which it does not), or French ultramarine from France,—a shilling stick of Rowney's or Robertson's Indian ink is good enough for anybody.

(To be continued.)

## THE ART OF THE ITALIAN RENAISSANCE.\*

(Concluded from page 221.)

TURNING from Michael Angelo, the supreme sculptor of the Renaissance, to the Venetians—who, for all beautiful qualities of fine painting, were its supreme masters—was like coming down from an arduous attempt to scale the loftiest peaks of the ideal to bask in pleasant meadows and wander through enchanted groves. The first painter of the Venetian colour school to which he would refer was Giorgione, whose very name sounds richly in our ears and fills the eye of our imagination with a vague delight of gorgeous Venetian colour—that full-toned colour which glows with the warm splendour of sunset or of a twilight soft as that which might fill the chambers of some palace of the genii, where the glare of noon should come mellowed through amber windows. But alas! Giorgione is now little more than a name to conjure up such pleasant dreams—a legendary personage whose works have perished from the earth to live only in the imaginations of men. All the frescoes with which he adorned the fronts of public buildings in Venice are utterly gone with the exception of some very few mouldering fragments which still cling to the walls. But the impression which Giorgione produced upon the men of his time is shown by the multitude of imitators which his novel style produced—some twenty men or so setting themselves more or less deliberately to paint pictures easily mistaken for his. The lecturer gave an interesting account of Giorgione's private life and early studies. In Giorgione we see for the first time a man whose art is not only almost divorced from religion, but one who frequently paints subjects which are not even legendary or mythological, but simply ideal transcripts from the life around him. The beauty of life and the interest of every-day incidents was now at length openly recognised by the Venetians, and hence the crowd of followers who pressed into the wide field thus entered by Giorgione. After criticising the works of several painters over whom Giorgione's influence was clearly visible, the lecturer referred to Titian, who, he said, was as manifestly the representative Venetian painter of his day, as his master Giovanni Bellini was of his. Born in or about 1477, in the hill country of Cadore, he seems to

\* By Dr. John Tothunter. Being the last of a course of lectures delivered under the auspices of the Alexandria College, in the Museum Buildings, Trinity College.



have felt the glory of landscape scenery, as probably no painter ever did before. He was in fact the completer of that fine treatment of landscape as something more than mere background began by Bellini, Cima, and Giorgione. In 1516, when aged 39, Titian was fairly recognised as the great Venetian painter. He moved in the most cultivated society, and was in great request as a painter of portraits as well as of subject pictures. Titian's long life of 99 years has not the personal and political interest of Michael Angelo's. Titian was the prosperous aristocratic painter of a wealthy city, whose national prosperity was at its height, while its spiritual decline had begun, and his art shared to some extent in this decline. We do not find in Titian the same undeniable advance from first to last that is observable in Bellini; yet up to his 80th year he shows little sign of decline in skill. A picture painted for his own pleasure a few years before his death was hung up as a model of all technical excellence in the studio of Tintoretto. It is rather in the spirit of his works that a feverish inequality appears. He became the flatterer of princes, and painted multitudes of pictures, which pandered to the lower tastes of such men as Philip II. of Spain; yet at the same time he occasionally did magnificent things, and at his lowest he was always a great painter. His portraits, especially, must always take the very highest place, though he frequently flattered his sitters by free idealisation, as in the case of the ugly, awkward, and sensual Philip, whose likeness, as put by Titian on canvas, won the heart of Mary of England. One of the greatest works of Titian's best period is his "Bacchus and Ariadne," which would require poetry rather than plain prose for its description. Suggested as it is by a poem of Catullus, and itself, no doubt, the origin of Keats's "Endymion," the picture is indeed quite in the spirit of Keats—classical in the sense in which his work is classical, steeped in the sunshine of Greek mythology, yet with a richness of tone which is distinctly modern, and which we are in the habit of calling romantic rather than Greek. Ariadne, abandoned by Theseus in the Island of Naxos, is surprised by Bacchus as she stands gazing out to sea after the retreating sail. Bacchus, in his chariot drawn by leopards, and surrounded by a group of satyrs, comes rushing out of a forest glade, and arresting his leopards, flings himself from the chariot in passionate pursuit of Ariadne, who turns to fly at the first surprise of his sudden advent. The Sienese school of the fifteenth century became merged in the Umbrian school which culminated in Perugino. Vasari stated that Perugino worked for some time with Leonardo and Lorenzo, where he perfected his perspective studies and colour system. He was a very successful painter of the period. Perugia was a city of mediæval Italy; and Perugino was himself mediæval. His art was in spirit retrospective. How far he was a religious man seems doubtful. Vasari said of him that he possessed very little religion, and could never be made to believe in the immortality of the soul; that he placed all his hopes in the goods of fortune, and would have undertaken anything for money. There was also a tradition that he died without the rites of the Church, and was denied Christian burial; but that seemed to have been owing to his having died suddenly of the plague, for the monks afterwards had his body transferred to Florence, and honourably buried there. Whether he was a religious man or not, he was eminently a religious painter. Mr. Ruskin, indeed, has laid it down that, in order to be a religious painter, one should be a religious man, and deduces Perugino's piety from his pictures. It was, indeed, all but impossible to believe that the man who painted pictures so full of devotional feeling as those of his best period could have been without the feeling thus expressed; but in some of his later works the feeling seemed of a rather artificial kind—sentimentality rather than sentiment. But

granting that he was often guilty of the faults of affectation and mannerism, there yet remained in his work a mysterious fascination—an abiding charm—which work that was insincere and mechanical could never produce. His best pictures were steeped in an atmosphere of divine peace, and he was more ethereal and ecstatic than Bellini. He seemed to sigh after an ideal state of serene and holy joy. One remarkable thing in his pictures was the important part which landscape played in the general effect. His landscape, like that of Titian, carried out and emphasised the sentiment of his figures, while it was at the same time clearly Perugian, while that of Titian was Venetian. Perugino's great pupil was Raphael. In Raphael, not merely the Umbrian, but the Florentine school of the sixteenth century culminated. If a man's originality could be questioned because of his being indebted to others, Raphael was the least original of men. Shakspeare himself was no more of a voracious parasite upon the genius of other men than Raphael. As compared with Michael Angelo, Raphael was rather an adopter than a creator, though the former stole something from Signorelli; but Raphael's genius appeared in the magnificent manner in which he dealt with his thefts. He was not a mere adopter, but was a re-creator, dealing with the works of other men much as they dealt with the works of nature. It was chiefly as a consummate master of composition that he shone supreme. In other qualities it could not be said that he excelled the men whom he copied. Perugino was very much his superior as a colourist; Michael Angelo's sublimity was altogether out of his reach, and even as a draughtsman Raphael was not always perfect. Raphael's father, Giovanni Santé, of Urbino, was himself a painter of respectable attainments. The lecturer described several of Raphael's principal works, and said the amount of pictures he painted during his short life—for he died at the age of thirty-seven—was simply astounding. The art of the men of the post-Raphaelite period, though often technically fine, was essentially debased and decaying. Although Ruskin was in the main right in tracing the decay of Italian religious art to the decay of Italian religious faith, it was nevertheless a fact that the glorious non-religious art of the Renaissance died out *pari passu* with its glorious religious art. The later painters were no less feeble in treating Pagan than Christian subjects.

#### THE SOCIETY OF ARTS, LONDON, AND ITS WORK.

We print below a few extracts from the report read at annual meeting, and which, owing to pressure on our space, we were obliged to hold over from last issue:—

**Sanitary Section.**—The success attending the Sanitary Conferences of the society has led the council to believe that good might result from the establishment of a permanent department, to carry on similar work more continuously than can be done at meetings held at intervals of a year. They have, therefore, appointed a Sanitary Section, the committee of which has held several meetings. It has been favoured with the attendance of some eminent authorities on sanitary questions, and the committee hope soon to be able to publish much useful information which has been placed at their disposal by those gentlemen. The committee have also had before them a suggestion by Mr. C. N. Cresswell on the subject of a proposed organisation for registering London houses according to their sanitary condition. They have published some correspondence on the subject between Mr. Cresswell and the Right. Hon. James Stansfeld, in the hope of eliciting public opinion thereon, and they hope that, later on—perhaps during the coming autumn—they may be able to summon a small conference of engineers, architects, and other qualified persons, to discuss this very suggestive idea.

**Artisan Reporters.**—Under directions of a committee arrangements were made for selecting a number of men, sending them to Paris, and receiving them there. The committee also collected funds for the purpose of defraying the expense of this movement. The result of the arrangement was that 204 artisans were sent over to Paris, most of whom

have sent in reports; 57 of these men were sent at the expense of the fund; the charges of the other 147 were defrayed, some by provincial towns, others by various societies, others through their employers; whilst a few paid their own expenses. . . . The arrangements in Paris for the reception of the men were made under the special directions of Sir Philip Cunliffe Owen; two houses were engaged near the Exhibition for their benefit, and some rooms were also set aside for the purpose in one of the houses used by the staff of the Royal Commission. The men were admitted free to the Exhibition, and were given every facility for the successful accomplishment of their task. They were also introduced to many of the best workshops and manufactories within reach of Paris. In all, 168 reports were received; some of these have already been printed by the towns who subscribed to send out the men; and five reports, made by the reporters of the Cornmakers' Company, have been printed in a very handsome form by a late master of the company, Mr. C. Sanderson. The other reports were carefully considered by the committee, and it was eventually decided to make a selection from them, and publish the selected reports in classes, as well as in a single volume. In carrying the movement to a successful issue the society is greatly indebted to those members of the Paris Commission who formed a joint committee with the members of the society's council; and especially to Lord Spencer, the energetic chairman of the joint committee. They also feel that the thanks of the society are due to Sir Philip Cunliffe Owen, under whose careful organisation were made the admirable arrangements for the accommodation in Paris of the reporters. The success of the movement is indeed largely owing to his energy, and the council are glad to avail themselves of this opportunity for stating the fact. The funds provided came, to a large extent, from the liberality of several of the City Companies. The Clothworkers' Company contributed £100. The Drapers' and Mercers' 50 guineas each. The Fishmongers', Carpenters', and Salters' also subscribing liberally; the total amount thus provided was £741. The council feel that this movement has been thoroughly successful, and this is the more satisfactory to them since it was initiated through the personal efforts of their president.

**Owen Jones Prizes.**—The first award of the prizes established by the Owen Jones Memorial Committee has been made during the present year. That committee presented to the society the sum of £400, the balance of subscriptions to the Owen Jones Memorial Fund, on the condition that the interest of this money should be expended in prizes to students of the Schools of Art who should produce the best designs for household furniture, &c., on the principles laid down by Owen Jones. The examiners reported that the following students had sent in to the annual competition of the Science and Art Department works of sufficient merit to deserve a prize:—John M. Carr, School of Art, Nottingham, design for a lace curtain; Frank Baker, School of Art, Nottingham, design for a lace curtain; Harry H. Hitching, School of Art, Nottingham, design for a wall-paper; Arthur J. Sewell, School of Art, Nottingham, design for silk tapestry; Isabella C. Bergin, Metropolitan School of Art, Dublin, design for muslin; and I. S. Inghall, School of Art, Barnsley, design for modelling rosettes and ornamental borders. The prizes consisted in each case of a well-bound copy of Owen Jones's "Principles of Design," and a bronze medal. For this purpose a special edition of "The Principles of Design" was prepared, and the council have to tender their thanks to the Institute of British Architects for permission to republish this work, which was originally a communication made by Owen Jones to the Institute. The republication was under the charge of Mr. Alan S. Cole, to whom also the thanks of the council are due for the trouble he took in the matter.

**Memorial Tablets.**—During the year no additional tablets have been set up, but the council have entered into communication with the Corporation of the City of London in the hope that the corporation would assist the society so far as regards the erection of memorial tablets within the city itself. They are glad to be able to report that the proposal, after full discussion in the City Lands Committee, was received most favourably, and they have every reason to expect that the corporation will themselves undertake this portion of the work, thereby relieving the Society of Arts from a considerable part of its self-imposed task in the matter. The council have, of course, undertaken to assist the city committee, and they feel much gratified at the cordial way in which their suggestions were received. When the result is seen of the action taken by the city of London, the council will bring the idea before other large municipalities. By means of these tablets, reminiscences of the most remarkable persons in history will exist throughout the kingdom.



## THINGS NOT GENERALLY KNOWN.

FLEET-STREET, Dublin, unlike the street of same name in London, was not derived from a river of that name, yet perhaps it was, for the freshets in the River Liffey were once fleet enough, and its once unembanked shores extended to where the present Bank of Ireland (formerly the Irish House of Parliament) stands. Liffey and Strand-streets, are, however, derived from the Anna Liffey.

Bachelor's walk has a right to its *key*, for it is a quay-side place; but as it was first christened it still remains, and seems well contented with its first degree. Perhaps our meddling and muddling Corporation will call it O'Connell-quay when Gandon's bridge is "restored" and its arches are battered down from the semi-circular into the elliptic. What fits of epilepsy sometimes seize our authorities; but these are dead level times.

College-street was called Bank-street for a short time, but the public did not take to the name, and it had to be discarded. Trinity College was more ancient than the Bank; and as Parliament-street had got the first start, there was no sense in calling College-street Bank-street, and to make it *Little* Parliament-street would be absurd, even though facing the portico of the old Irish House of Lords. The Lord save us here and hereafter from the publican intellect of reformed and unreformed corporations!

We had two Cope-streets at the latter end of the last and in the earlier part of the present century. One still exists in the neighbourhood of Dame-street, but the other many years ago was transformed into Talbot-street. How we grieve over the butchery of this thoroughfare within recent years. Fine private dwellings have been barbarised, and fleshers, pig-stickers, cats'-meat-men, huxters, green-grocers, and other jerkers and jerry-diddlers have invaded the place and outraged the footway with obstructions. Poor old Cope-street that was, the police or the other authorities are unable to cope with the growing evil because they are fully sensible of what benefits flow by being not too particular. "It is not for nothing the cat jumps." So our old maternal grandmother used to say.

Foster-place, College-green, was called after the Speaker of the Irish House of Commons. It is going to be reserved, we dare say, for the site of the statue to some municipal "big gun" who talked himself into notoriety, and to whom the late General Gough was but a small pistol. Let us prepare ourselves for the removal of the equestrian King William, and the erection in its place of the statue of Alderman Brian Muldoon, with a puncheon for his pedestal, a glass in one hand, and a "battered naggin" in the other.

We are unable to find out whether Tuckers'-row,—now and for several years Sackville-place,—was called after the original "Tommy Tucker," of nursery rhyme fame. There was, and perhaps still is, another Tucker's-row off New-street. When Lower Sackville-street was Drogheda-street, Tucker's-row, off the latter, was a lively place, and continued so for many years. To its "lock up," which still continues, the offender and the offended are often taken in; and, if forced to sleep there all night, the men and women may tuck their own clothes under them for "shake down." This is a bit of the archæology of Tucker's-row.

We are not certain whether the modern street nomenclature of the city includes a Roman street; perhaps not, as these are not like the classic days of the last century in Dublin, which gave us a Greek-street, with a Latin-court, as one of its offshoots. Our old Corporation in the last and preceding century were very generous, for they gave us a Golden-lane, a Silver-street, a Copper-alley, and a Many-penny-yard. They could, however, be savagely and criminally inclined at

times; for instance, they favoured the city with a Cotpurse-row and a Murdering-lane, and they made amends in their repentant moods by bestowing on the city an Angel-alley and Angel-court and a Paradise-row. Let us forgive the old City Fathers: they were a race of workers and thinkers, if hard drinkers individually; but in our dead level times we have a number of City Fathers who make our people drinkers, if not drunkards, by neglecting to carry out sanitary improvements.

There are many other "Things Not Generally Known" in this city besides the above, and which some folks prefer should remain unknown. A people who will think for themselves will not go on stupidly drinking to please others. What is wanted is more work and less talk, honest representation and useful improvements. Let honour be given to those to whom honour is due; statues were only intended for great and worthy men, and oblivion and the gallows for public jobbers and criminals.

## A SHABBY TRICK.

WE have just become cognisant of a fact that we cannot, in the interests of trade, permit to pass without comment. A certain influential body required a matter of unusual manufacture; their scientific advisers neither knew how to describe it nor how to estimate its cost, and feared by seeking professional assistance to attract public attention; few of the Dublin houses had ever undertaken such work, and one of these was requested to give an estimate and the much-needed information. What was their surprise to find the matter advertised in the public journals, every clerk in the office being aware of the prices, &c., and a garbled copy of their specification in print. We have seldom met with or heard of such a piece of official trickery. There was no necessity for any competition, and unless with the patriotic (?) view of getting an English contractor, we cannot see why the work was not either ordered from the one house, whose information has been so shabbily made use of, or tenders privately sent to the only houses in Dublin capable of competing. This is home rule with a vengeance, and we are not sure that one of the originators of that movement some years ago in the Bilton Hotel is altogether guiltless in this proceeding, the onus of which cannot be cast on any English over-ruling power.

## THE IRISH BOARD OF WORKS IN PARLIAMENT.

IN voting the supplies on Monday night last in the House of Commons, a discussion ensued on the part of several Irish members, some of whom strongly condemned the present administration of the above body. We give a brief summary of what was said *pro* and *con* :—

Mr. Henry moved to reduce the vote by £1,500, the salary of the chairman of the board, and complained of the inefficient way in which the department was administered. He left perfectly convinced that the board would never be efficient until it was presided over by a chairman who took a wider view of his duties. The present chairman was a most conscientious man, who would insist upon doing all the work himself, and had no idea of the way to use other persons. The greatest possible hardship had resulted in some cases owing to the physical and mental inability of one individual to do all the work. He (Mr. Henry) asked the Government what they were going to do with this board.

Colonel Colthurst said the conviction was general throughout Ireland that unless the Board of Works were reformed no good could be expected from it. Would the Government instruct the board to grant to managers of industrial schools the same facilities in respect of loans as were accorded to managers of other schools?

Mr. Errington hoped the Government would give the committee a clear statement of what was going to be done upon the recommendations of the committee who had inquired into the administration of the department.

Mr. Martin regretted that no step had been taken in respect of any one of the recommendations of the committee, whose report had been before the Government since June, 1878.

Sir H. Selwin-Ibbetson said that as soon as the report came into his hands, the Treasury had instructed a gentleman to codify the acts relating to drainage. The work was, however, a laborious one, and the Government could not put its results forward till the beginning of next session. As to the re-construction of the Board of Works, that was a matter of great difficulty, and it had been postponed for further inquiry into the whole system. He thought that time would not be lost by this course having been taken. He could not agree with the recommendation of the committee that the chairman of the board should be asked to retire. He had rendered great service to the State, but the truth was that he was altogether overburdened by work. He hoped, therefore, that the report of the committee in this respect would not be endorsed, and that the amendment for reducing the vote by the amount of the chairman's salary would not be agreed to.

Major Nolan wished to know if there had been any reports made by the Board of Works as to abolishing the system of repaying public loans by annual instalments. The present system was very popular in Ireland.

Sir H. Selwin-Ibbetson said that there had been no such reports.

Mr. Shaw asked if the Government, in the proposed transfer of powers connected with the Board of Works, had considered how the Bright clauses of the Land Act were to be carried out. This was a most important matter, for farmers at present preferred to pay two per cent. more for money than go through the roundabout process of getting that money from the Board of Works. Public opinion ought to be brought to bear upon the operations of Boards like this, and it would be well that there should be some representative persons upon the Board.

Mr. Bruen said that he had many transactions with the Board of Works, and he had always found it a most business-like body to deal with.

Mr. Parnell hoped that increased facilities would be given to tenants to acquire property in their own holdings, for without this fair scope could not be given to the Bright clauses.

Sir H. Selwin-Ibbetson said that as far as the Treasury were concerned they would instruct the Board of Works to soften down the operations of these clauses as much as they could, though of course legislation on the subject this session was out of the question.

Mr. Henry withdrew his amendment, and the vote of £30,607 was agreed to.

## THE ENGINEER TO THE LOCAL GOVERNMENT BOARD.

IN choosing Mr. Charles P. Cotton, M.R.I.A., &c., for its scientific adviser, the Local Government Board has made an excellent and popular selection. An Irishman, born of the soil and familiar with his fellow-countrymen and their requirements, he will bring to bear much local knowledge in connection with a goodly amount of practical experience of a varied character, and a superior university education, commenced in St. Columba's College, Rathfarnham, and completed in Trinity College, Dublin. He is not only an Honorman of the Engineering School, but served his time to Wm. R. Le Fanu, Esq., who for some years past has been a Commissioner of Public Works, and previously from 1846, an engineer of large practice. We wish Mr. Cotton every prosperity in his new and well-merited position.

## LAW.

## ACTION AGAINST A SANITARY SURVEYOR.

At the recent Assizes for Co. Mayo the following case was heard before Lord Justice Deasy and a common jury :—

*Porte v. Jogan*.—Plaintiff was a working jeweller living in Ballina. Defendant was the sanitary surveyor for that town. In the month of July, 1878, defendant was engaged in making a sewer in Arthur-street, Ballina. It was alleged that the sewer was left open during the night of the 5th of July in that year, and without any watchman or light



being left to warn the public of the dangerous state of the place. Plaintiff was returning home that way, and falling into the sewer, was greatly injured, losing five teeth, and was obliged to keep his bed for several weeks. The defences pleaded were traverses of the doing of the acts and the contributory negligence of plaintiff. It was also contended that defendant was protected by the Public Health Act. The jury found for plaintiff £125 damages.

#### NEW CHURCH, HOWTH.

We illustrate in the present number a design for the proposed Catholic Church at Howth. The work is intended to be carried out in two stages, the first portion to be completed being the apse, tower, transepts, &c. The existing church, a single nave 30 ft. wide, will be retained until the completion of the first stage, when it will be cleared away and replaced by the new nave, which will occupy the same site, aisles being also added.

Our illustration is from a drawing by Mr. Walter Doolin, B.E., architect, exhibited in the Royal Hibernian Academy this year.

#### FORTHCOMING ARCHÆOLOGICAL MEETINGS.

##### THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE thirty-sixth annual congress of the British Archæological Association will be held in Great Yarmouth from Monday, August 11th, to Wednesday, the 20th, inclusive. The opening meeting will comprise the reception of the president and members by the mayor and corporation at the Town Hall, and the delivery of the inaugural address by Lord Waverley, the president. Next, the municipal regalia, ancient deeds, charters, and MSS. will be inspected under the guidance of the Rev. J. J. Raven, D.D., and the members and visitors will then perambulate the town, inspecting the old town walls, towers, ancient houses, crypts, &c. A public dinner will be held in the evening at the Star Hotel, the president in the chair. During the following day numerous buildings and places of interest in the surrounding country will be visited, and in the evening meetings will be held in Yarmouth, at which papers will be read. The closing meeting will be held at the Town Hall on the 16th, but on Monday, the 18th, and the two following days, the members of the congress will take up their quarters at Norwich, where, under the guidance of the Dean of Norwich, the cathedral will be examined and described, and the churches and other old buildings of interest in and about the ancient city, under the guidance of resident clergymen and members of the Norfolk and Norwich Archæological Society co-operating with the British Archæological Association, will be visited and commented on. The congress promises to be an attractive one, and it is hoped that the weather may be favourable.

##### THE ARCHÆOLOGICAL INSTITUTE.

This year's meeting of the Royal Archæological Institute will be held in Taunton. The congress will commence on Tuesday, August 5th, and will close on Tuesday, the 12th. The programme includes visits to Danster Castle, Quantox Head, Bridgewater, Iminster, Montacute House, Bishops Lydeard, Barrington Court, Norton Fitzwarren, Staple Fitzpayne, Kingston, Cannington, Cothelstone, Fairfield, St. Audrie's, Wells Cathedral, and Glastonbury Abbey. On three evenings there will be *conversazioni* and receptions in the castle or the town. The churches and castle of Taunton will also be inspected by the members, and will form the subjects of papers.

##### THE SUSSEX ARCHÆOLOGICAL SOCIETY.

The annual excursion of this Society takes place on the 14th. Brighton, "the queen

of watering places," will be the rendezvous. The oldest church in Brighton, St. Nicholas, will come in for particular notice, and probably Ovingdean Manor House, and Rattingdean, places of historic note, will receive attention, with other buildings and spots of interest in the vicinity.

#### BARON DOWSE ON WHITEWASH AND SOAP.

At the Wexford Assizes last week Baron Dowse called attention to the state of the courthouse. He hoped "an effort would be made to induce the grand jury to put a little size in the whitewash the next time they were painting the courthouse, for it was impossible to move about without being covered with lime from the walls! It was useless, however, to be making suggestions like that, for there would be no attention paid to them." In the courthouse of adjoining county (Wicklow) also he addressed the grand jury in the Crown Court. "On the previous evening he had visited the court-house, and he was able to congratulate the grand jury on having a very nice Record Court, but as a matter of fact he could not say the same of the court in which he was at present sitting. This was the court in which, according to the ancient custom, the reading of the Commission took place, and where the loyal subjects were desired to assemble, and it ought not to be worse than the one in which civil bills and matters of that sort were disposed of, and which was generally occupied by strangers. In the Crown Court the members of the bar complained of the very inconvenient seats they enjoy. He envied his brother O'Brien's chair in the next court, and he now asked the grand jury to look at the mediæval structure he was at present sitting on. He thought a little paint would do no harm to this court, and some soap and water would be of some benefit in the first instance. However, a hint to the wise was sufficient."

#### SANITARY PROGRESS.

THERE seems to be an impression in the minds of many intelligent persons, that the present popular interest in sanitary subjects is of a temporary nature. They consider it a mere transient excitement due to the prevalence of sewer gas in dwellings, the late epidemic and like circumstances, and when these are forgotten, so also will be the sanitarian's labors. But this is a mistaken view; the sanitarian has come to stay. His field is the world, and much as we may dislike to admit the fact, he is bound to be "always with you." So long as the vast majority of our city dwellings are the product of the "speculative" builder's misapplied ingenuity, so long as the average householder wholly ignores matters of hygiene, we may expect to find ample need for the sanitarian's services.

Many persons have a vague notion that sanitary work is mainly theoretical, and that it is secondary to medicinal work. But this is a grave error. The physician seldom looks beyond the immediate task of curing his patient. He rarely considers the cause of his malady, but is content to make a diagnosis from existing symptoms, and ignore the rest of the problem. But often he strikes a false scent, and follows a wrong clue. His patient suffers in consequence, and does not recover. Had he first sought and found out the source of the disease, he could hardly blunder in his diagnosis.

We are glad to learn that many of our most enlightened physicians are giving more thought than hitherto to these matters. Among their first inquiries when called to see a patient, is, "How is your plumbing?" Experience has taught them that it is useless to try to eradicate fever or diphtheria until the physical surroundings of the patient are freed from contagious influences. An open joint or defective trap may retard recovery despite the most careful treatment. Remove the evil conditions, and recovery is instantaneous.

Perhaps in time the general public may view these matters in the same way. But the sanitarian looks at the problem wholly from the side of prevention. He searches out causes and seeks the principles which underlie them. He may study individual cases, but only to reach general principles; his measures of relief are adapted to benefit the whole of humanity. The lancet of Jenner was said to have saved more lives than the sword of Napoleon destroyed. The extension of proper drainage systems in England has lessened the death-rate enormously. In short, sanitary science has saved millions of lives, and in other ways brought about results of incalculable value to the world.—*Sanitary Engineer*.

#### ACCIDENTS AT BLACKWALL, LONDON.

A SINGULAR accident occurred on Tuesday at the East India Docks. The East India and West India Docks adjoin closely the terminus of the Blackwall Railway. They occupy an area of some fifteen acres, and it is no uncommon thing for six hundred vessels to be lying in them at a time. About five o'clock on Tuesday morning one of the policemen in the employment of the East India Dock Company was surprised to find that during the night a large portion of the wall known as the import dock had given way, and had carried with it into the water all the hydraulic cranes and the quay sheds. The length of the quay wall that has given way is 150 ft. The amount of damage and destruction to property is estimated at upwards of £100,000. The ships lying in the dock had their moorings carried away.

A second accident of a different character occurred the same day in another part of the same docks. Some hydraulic experiments were being carried on in what is called the New East India Dock Basin, by Mr. Sparks, the manager of the firm of Messrs. Dudgeon, of Millwall. Mr. Sparks happened, at half past twelve o'clock, to be inside a travelling crane overseeing the testing operations, when the tramway on which it moved gave way, and he and the whole apparatus fell into the water. How Mr. Sparks extricated himself from the machine has not been clearly ascertained, but it is supposed that the crane burst and he thereby was freed. He was rescued as soon as possible and taken to the Poplar Hospital, where it was found his thigh and arm had been broken. The fall of the crane caused some portion of the quay wall to give way. It is believed that the wheels and axle of the crane broke during the testing and toppled over. The crane at present lies 26 ft. under water, so that it is impossible to say definitely what caused the accident.

#### JERVIS STREET HOSPITAL.

For the portions of the hospital to be at present erected, six tenders have been sent in, exclusive of foundations, which are already built:—Meade and Son, £29,390 (accepted); Cockburn and Son, £30,000; John Toole, £31,500; Wm. Murphy, £31,700; Hammond and Co., £32,200; Roberts, £34,400.

#### HOME AND FOREIGN NOTES.

The Queenstown Town Commissioners have resolved upon executing some improvements in the approach to the new Roman Catholic Cathedral, suggested by the architect, Mr. G. C. Ashlin. We illustrated this building in our journal.

AN HISTORICAL PAINTING.—The grand picture by D. MacIse of "The Marriage of Strongbow with Eva, daughter of the King of Leinster," recently purchased by Sir Richard Wallace, has been presented by him to the National Gallery of Ireland.

DYNAMITE.—Experiments with dynamite were made yesterday at Dundrum by the "Nobel Explosives Company" to show that the article had been "grossly libelled," and that as produced by the company it deserves to be characterised as "gentle when stroked, fierce when provoked."



**GLASGOW.**—The new Central Station was formally opened yesterday by the chairman, Mr. Hill, the directors, and many influential citizens. It is situated in the centre of Glasgow, and cost £720,000. It has six platforms, with a frontage of 536 ft. to Gordon-street, and is so long as to contain the longest possible trains.

**THE BRISTOL MASONS' STRIKE.**—The masons of Bristol, who, to the number of nearly a thousand, have been on strike for eight weeks against a reduction of a halfpenny per hour, have had a conference with the masters, the result being that the men yielded to the masters' terms, and will resume work to-day. The carpenters still remain out.

**ACTION FOR LOSS OF LIFE.**—In an action against the Port and Docks Board, tried at Wicklow assizes, a verdict for £750 damages has been awarded to the widow of the master and owner of a schooner who was drowned whilst his vessel was lying at Sir John Rogerson's quay. It appeared that on returning to his ship, one night in March last, he tripped against a crane which stands close to the quay wall, and, from want of sufficient light, he fell into the river.

**CELTIC LITERATURE.**—A new magazine entitled the *Celtic Review* is announced. It will be a "Quarterly," and issued under the care of the Rev. Mr. Cameron, of Brodick, and will treat of subjects connected with the language, literature, and archaeology of the Highlands, and is intended to occupy a higher field than the existing Gaelic periodicals. The lovers of the Irish language, and the Society for the Preservation of the same, will need to look alive in face of the above announcement.

**WANTED.—SUN-PROOF LABOURERS.**—A military physician, M. Coupanys, who served in Algeria and was engaged in the sanitary arrangements of the Suez Canal works, is about to be sent to the Isthmus of Panama, there to ascertain what measures will have to be taken for the preservation of the health of the labourers. As regards the latter, agents are to be appointed to recruit them from among the inhabitants of South America, best fitted for supporting fatigue in a tropical climate. M. de Lesseps has written to the Emperor of Brazil to ask for his co-operation in procuring hands.

**LOCAL GOVERNMENT BOARD.**—A new office has been created in Ireland by this board—that of Engineer and Scientific Adviser; it will be no sinecure. There are a great number of poor-law unions in this country, and their guardians are not men to want professional aid when it can be had without any charge on the rates. At least two experienced assistants will be required to examine plans and specifications, and occasionally estimates, whilst the principal is attending to the various matters of inspection and superintendence, and probably three clerks to copy documents and conduct the correspondence, which will be voluminous.

**A WORK OF ART.**—Mr. Bagot Blood, of Wellington-road, has presented to Trinity College Library a unique volume which rivals in every respect, except antiquity, the famous Book of Kells. This new acquisition of the library is a copy of the *Magna Charta*, written on ten or twelve folios of vellum, 20 in. by 16 in., and splendidly illuminated. The initial letters rival those of the Book of Kells in beauty of design, delicacy of detail, and in brilliancy and harmony of colour. The date of the volume is 1817; it was produced by a London publisher, and by him dedicated to the Prince Regent, afterwards George IV. Portraits of his Royal Highness and of Prince John adorn the volume, which is richly bound in dark mauve-coloured leather nearly covered with gilt ornamental work. The whole is contained in a crimson and gold casket. We understand that Mr. Blood had refused £500 offered for the book.

**NORTON'S PATENT "ABYSSINIAN" TUBE WELLS.**—Messrs. Le Grand and Sutcliffe, of Bunhill-row, London, write us in reference to a notice of their exhibits at the Royal Agricultural Show, Kilburn, which appeared in our last issue:—"As we are at present occupied in Ireland it may interest your readers to know that we have this week driven a 3 in. 'Abyssinian' 53 ft. deep below the bed of the river at New Ross, where after driving through nearly 50 ft. of hard clay and sand, we reached a bed of gravel, containing an abundant supply of pure fresh water, which rises to within 6 ft. of high water mark. Thus the odd spectacle is now being witnessed of a stream (2,400 gallons per hour) of fresh clear water being pumped apparently from the salt and cloudy river. This spring of water is intended to supply Messrs. Cherry Brothers' Brewery. The gravel from which it comes evidently indicates an old river bed, much water and some 50 ft. deeper than that of the present river.

**THE PEMBROKE TOWNSHIP.**—In their annual report the Commissioners state that they have paid off loans to the extent of £2,050 during the year, and invested £428 13s. 1d. in New Three per Cent. Stock to the credit of the Sinking Fund, making a total of £892 17s. 6d. invested; the balance to debit of the account being £12,157 19s. 2d., as against £12,641 12s. 3d. in December, 1877. The valuation of the township for the current year has increased from £82,031 to £85,124. The Main Drainage Works are being rapidly executed, and the Commissioners are sanguine they will be completed within the time named in the contract. The building of the new Town Hall has been commenced, and the Commissioners expect to be in the occupation of their new offices in about twelve months. The Commissioners are indebted to the Earl of Pembroke for the site, who has also promised a further contribution of £1,000 towards the building, making in all £2,200. A commission has been sitting taking evidence with regard to the proposal of the Corporation of Dublin to annex the township. The Pembroke Township Commissioners, having carefully considered this question, have resolved to oppose, by all means in their power, such proposal, as they believe, if carried out, it would be ruinous to the township.

**THE SALE OF THE LATE WILLIAM SNOXELL'S CURIOSITIES.**—In a late issue we gave some particulars of the deceased collector and his collections. Messrs. Puttick and Simpson have just finished the sale of the collection of autographs and other *curiosia* belonging to the late Mr. William Snoxell, the antiquary, of Charterhouse-square. Among the articles brought to the hammer on the last of the five days occupied by the sale were a variety of papers relating to the families of Cromwell, Strafford, Pengeley, Brereton, Baynes, Bowyer, &c., autograph letters and other memorials of Mendelssohn, Anber, Arne, Hayden, John Evelyn, Robert Burns, Grimaldi, Dr. Johnson, Robert Bloomfield, John Wilkes, Garrick, Beethoven, John Wesley, Sheridan, Fox, Pitt, &c. But the most important lots were the original will of the great composer Handel, in his autograph, and with four codicils, all bearing his signature; the old-fashioned silver-chased watch which he wore constantly, and the catalogue or inventory of his effects, taken after his death, "at his dwelling-house in Great Brook-street, St. George's, Hanover-square," in August, 1759. The watch and the inventory were knocked down each at about £5; the will, which was bound up in a velvet expanding case, and carefully preserved under glass, and which referred to the demand for a monument to his memory in Westminster Abbey, was knocked down to Mr. Cummings, the well-known tenant, for £53.

**THE NATIONAL BUILDING COMPANY.**—At the fourteenth ordinary general meeting on Thursday last, the chairman, in moving the adoption of the report, said:—"The dividend they recommended on this occasion was, he was sorry to say, less than it had been hitherto, but the shareholders could hardly wonder at that when they remembered the difficulties and depression that had prevailed of late, and which he was afraid they had not yet seen the end of. The prospects of the country were not very bright, and such weather as they had that day he was afraid would not be encouraging. Anyone examining their accounts would see that they were not justified under the circumstances in now recommending a dividend of more than 5 per cent. The business done in the year was £3,600 less than in the previous twelve months, which in itself was a great falling off, but although the business actually done was less, the applications for loans and advances were very much in excess of the usual number. The directors thought it necessary, however, to use more caution in the loans they granted, and hence the falling off in business. There was also a decrease in the amount of deposits, which was to be accounted for thus—the board resolved in the early part of the year to pay of all depositors who received more than 5 per cent on their balances, the result being that according as the 6 per cent. bonds fell due and were wiped off, the depositors, or most of them, withdrew their money, being dissatisfied with the new maximum rate of 5 per cent. It had been no inconvenience to them to do this—their resources were equal to their wants, and they had been relieved of that heavy charge of 6 per cent. on deposits amounting to £6,000. It was the intention of the directorate to continue this policy as the other 6 per cent. bonds fell due."



The Earl of Mount Edgemore, Lord Chamberlain, has by Special Warrant appointed Mr. JAMES W. BENSON, of Old Bond-street, and Ludgate Hill, Jeweller and Watch Maker in ordinary to Her Majesty.—ADVT.

## TO CORRESPONDENTS.

**AN ARCHITECT.**—Although we are no sticklers for the Latin maxim so often quoted, we are inclined to say, "Let the dead rest!" They never did much in life, and as for their ghosts, there is not a ghost of a chance of their appearance, either for the purpose of amusing us or frightening us.

**BALLYGLASS.**—Broadhaven is the worst land lighthouse station on the coast. When Mr. S. first visited it in 1862, he was so shocked at the loneliness of the place and probable serious effects in case of illness, that he communicated his views to the late Sir J. D., begging of him to get from the Board of Trade an allowance of £15 a year to enable the keeper to have a servant. The timely interference resulted in the allowance of 8d. per day, which all females at single stations ever since enjoy,—one of the many forgotten acts of kindness rendered by Mr. S. in his long and wretchedly-required service. There is no school or church of any kind within several miles. The gentleman you allude to does not know one house from another!

**BES HEDER.**—A correspondent and frequent visitor to the Hill of Howth would like to know by whose orders and for what reasons was the public right of way barred by putting up of a new gate and embankment across the new path made a few years ago around the eastern side of the hill, overlooking the harbour and Ireland's Eye, and Lambay in the distance?

**A LAGHTKIPPER.**—The incident you mention was, to say the least of it, in very bad taste, but the bell should have been going, and Navy men are accustomed to strict discipline, however absurd it may be to compare a lighthouse to a ship of war. The captain is an Irishman, born in the County Monaghan, on the Shirley estate, although, like many other Irishmen, he would try to pass off as an Englishman. His grandfather was a portrait painter in London. None of the family are or have been French; it is a very old West-of-England name. See Trench's "Realities of Irish Life."

**ARTISANS' DWELLINGS.**—Is the tenant of one of those buildings who writes to us really afraid to append his name to his statements? If he wishes to do a service to the community he should append proper name. We may "pay a visit" to the block in question on an early occasion.

**C. E. (Cork).**—The notes will be acceptable, if not too long. **ARCHÆOLOGIST.**—The subject will be touched upon incidentally before the notices are completed.

**ARCHITECT (Derry).**—We believe the building was illustrated in one of our contemporaries across the Channel.

**GREENORE (Newry).**—A call will be made upon you early in the month.

**R. H. A.**—Your letter is a very good one, but there are some portions which might subject us to an action for libel if we published them.

**ART (Great Brunswick-street).**—We cannot see what objection you could have in the present instance to sign your name. The society is or is not worth recognising; and, if the "facts" you state are facts, why hesitate to have the courage of your opinions?

**RECEIPTS.**—S. P.—Vindex—Sanitas—M. A.—J. H.—T. C. D. (thanks)—M. D.—P. L. G.—A Citizen (not this time)—S. & Co. (London)—S. W. (ditto)—A Workman—P. G.—E. R.—C. B.—F. R., &c.

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*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*Correspondents should send their names and addresses, not necessarily for publication.*

*\*\* Stamps may be remitted in payment of small amounts.*

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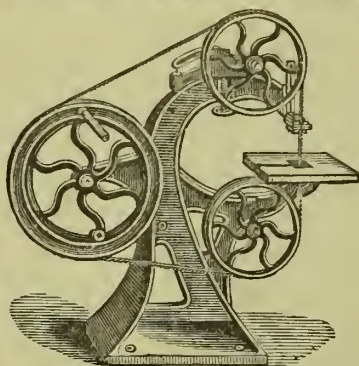
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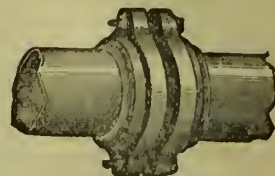
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Illustrations.

DESIGN FOR GATE LODGE, JOHNSTOWN-KENNEDY,  
RATHCOOLE.  
KILMACDUGH ROUND TOWER—SECTION AND  
PLANS.  
CORCOMROE ABBEY—PLANS AND ELEVATIONS.

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deviation of this tower from its centre, therefore, cannot be more than half the difference between the base and top diameters—or about two or three feet."

The height of the tower as given above was most likely a misprint, for, long before Bell wrote, Ledwich and others had put it down within a foot or two of what it is now ascertained to be by actual measurements. We only quote Bell in respect to the overhanging of the tower, as he visited the place, and was one of the first, if not the very first, to dispel the illusion long entertained respecting the extent of the overhanging of the tower. (See Illustration.)

Speaking of the other buildings at Kilmacduagh—the Scanchloch, or Abbot's House—Mr. Deane in his report observes:—

"This building is entirely of a domestic character, and dates from the fourteenth century. The upper portion of the walls appears to have been raised on the basis of a more ancient structure, as is evidenced by the offsets on the level of the first storey. A curious recess in the north side of the building leads one to suppose that access to the upper storey was by a ladder, which was drawn up when desired. This building has also been repaired and made safe from future ruin."

Anent the Monastery, or Hyne's Church, Mr. Deane writes:—

"My notes on this church in the report of 1878 have met with further confirmation. I have ascertained that the chancel piers have been rebuilt, and in such a careless manner that the base course on one side has been omitted, thereby leaving the northern group of columns ten inches higher than the southern. I also note the presence of the same workmen as were employed at Melaughlin's, at Clonmacnoise, and at the Abbey of Corcomroe, in the County of Galway. Not only are some of the capitals similar in general design, but almost *fac similes* of each other. The mouldings are of the same type, and the general character of the detail evinces either an ignorance of the peculiarities of the style in which the building was designed, or the imitation of an earlier style at a later date. The general repairs to the building are only such as were necessary for its protection from further decay. In close proximity to Hyne's Church are the remains of other buildings of early date," &c.

We would refer the reader to the pages of Petrie and Brash for several interesting particulars respecting the group of buildings at Kilmacduagh, and their historical associations. The following notes from Brash in particular relative to the architectural work will, however, possess an interest:—

"I would here again remark, that the early portions of the various remains at Kilmacduagh shew far superior masonry to the later or mediæval work, from the thirteenth to the fifteenth centuries. My note made on the spot is as follows:—'A remarkable feature in these churches is the masonry. In the west end of the nave of the Cathedral, in the chancel of the church of Temple In, and in the fragments of the other churches, the masonry is of large-sized material, the stones dressed to their natural shapes, and remarkably well fitted, in some instances being of polygonal character. The chancel-arches, window-dressings, and other details in which wrought ashlar is used, the work is of most exquisite finish, the carved work clean and sharp, the ashlar worked almost to a polish, and the jointing so fine as in some instances to be scarcely perceptible.'"

The above evidence tells highly to the credit of the early Irish masons or workmen, whoever they may have been, engaged in ecclesiastical buildings in this country. Even the Round Towers and other anterior and pre-historic structures in this country prove that Irish Pagans as well as Irish Christians could and did build conscientiously and well. Masonry such as Brash described is entitled to care and preservation, and we trust that it will be tampered with as little as possible. A mere ruin, long in a state of dilapidation, calls for no radical form of reconstruction, but good specimens or examples of architecture should not be let

perish off the earth. We do not go in for the restoring or rebuilding of every parish church, abbey, or cathedral, long demolished, but we go in for preserving those which have been already preserved to us by the labours of our predecessors, and of handing them down to our posterity (as far as it is possible) in as good a condition as they first reached our hands. The great majority of our national monuments and ecclesiastical ruins must perforce be still preserved in a state of comparative ruin or decay. They cannot be restored to their pristine state, they cannot become again what they once were, but, nevertheless, for some centuries to come, many buildings of historic note can be preserved, and deserve to be preserved, as fine examples of a native style of architecture worthy of imitation.

Respecting the Cistercian Abbey of Corcomroe, one of the most interesting in Ireland, we are told that the repairs consisted of "general maintenance of the structure, repair of battlement, pointing walls, and removal of accumulated rubbish in the interior." Mr. Deane furnishes illustrations of the ground plan of the abbey, the sedilia south side of the chancel, plan and elevation of arch on north side of chapel, and a plan and elevation of one of the columns.\* These details are interesting, and they will certainly afford the stranger an idea of the architectural features of the abbey. The Superintendent observes:—

"The peculiarity of its details and the extent of its buildings render it well worthy of being preserved. It is situated in a glen, which forms an oasis in perhaps the wildest district in Ireland, where one of Cromwell's generals, in describing it, says, 'No grass to feed, no water to drink, and no tree to hang upon.' The recumbent effigy of Donagh O'Brien, King of Thomond, killed in the battle in 1267, is in excellent preservation."

There is a paragraph in the twenty-ninth number of the first volume of the *Dublin Penny Journal*, under the well-known initial of Petrie, headed the "Antiquity of Smoking in Ireland." As it has a relation with our subject, we will quote it here:—

"The custom of smoking is of much greater antiquity in Ireland than the introduction of tobacco into Europe. Smoking pipes made of bronze are frequently found in Irish tumuli or sepulchral mounds of the most remote antiquity, and similar pipes made of baked clay are discovered in all parts of the island. A curious instance of the bathos in sculpture, which also illustrates the antiquity of this custom occurs in the monument of Donagh O'Brien, King of Thomond, who was killed in 1267 and interred in the Abbey of Corcomroe, in the County of Clare, of which his family were the founders. He is represented in the usual recumbent posture with the short pipe or *dudeen* of the Irish in his mouth."

Now in the ninety-fifth number of the second volume of the same journal there is a notice of Corcomroe Abbey by a contributor, with a view of a portion of the interior of the building, as also an illustration of the monument of Donogh O'Brien. In the latter there is no representation of the pipe in the mouth of the king, nor any allusion to the fact, if fact it be, mentioned previously by Petrie, who we are inclined to believe stated what he once witnessed. Corcomroe has been called "Petro Fertile" also Gonnamonagh or Glen of Monks. The writer of the notice in the *Dublin Penny Journal* opens his description thus:—

"The Abbey of Corcomroe is situate in a lonely winding vale in the Barony of Burren, and County of Clare. It was anciently called Corcamradh, from the Irish *Cor*, a district, *Cam*, a quarrel, and *Ruaidh*, red, and was also denominated the Abbey 'De Viridi Saxo,' or 'of the Green Rock,' from the

\* These we have reproduced in present issue.

THE IRISH BUILDER.

VOL. XXI.—No. 472.

THE PRESERVATION OF NATIONAL MONUMENTS.

THIRD PAPER.



NE or two dropped notes from our last paper leads us to return again to the subject of the Round Tower at Kilmacduagh. In Bell's

treatise on the "Gothic Architecture of Ireland," published about 1823-9, or, say, half a century ago, the following notice of the Round Tower of Kilmacduagh appears, which is worth reproducing:—

"The place is celebrated for its Round Tower, which for ages has tottered on its foundations, as it is generally said to overhang its perpendicular the amazing space of seventeen feet and a-half. What a wonderfully adhesive cement must that be, which thus for centuries could counteract all the laws of gravity, and uphold the building in their despite! This circumstance, however, has been greatly exaggerated. The tower has doubtless a slight inclination to one side; but the observer must walk round it and survey it very accurately in order to find out the aberration. This could never be the case if its deviation had been anything near that space. The truth is, it was one of those fables which hasty travellers are apt to take upon trust, without examination; and whoever first reported the wonder, it has been repeated again and again, till the story obtained general credit; according to these antiquaries, the obliquity of the celebrated leaning tower of Pisa was not to be compared with it. Let us suppose the height of this tower to be as it is generally calculated, 132 feet; its diameter at the base to be 15 feet. As it tapers towards the top the upper diameter is about 11 feet. One of these tapering sides (as near as an accurate eye can judge) inclines a little outward, and forms with its base point an exact perpendicular. The total



amazing fertility of the mountains and stony land around it. Even the interior of the abbey at this day presents a surface of nothing but rugged stones, and it seems as if there was not clay sufficient to cover the numerous corpses interred there. All appears a collection of earthless fragments of rock intermixed with human bones, as represented in the accompanying engraving. The ruin of Corcomroe Abbey is one of great splendour," &c.

The last paragraph of the notice contains some interesting particulars of the final days of the great abbey, and as we do not remember to have met elsewhere the information conveyed by the writer, we will quote it:—

"John, abbot of Corcomroe, was in 1418 made Bishop of Kilmacduagh; and Archdall reports that the abbey, with eleven quarters of land in Corcomroe and Gleammanagh were ultimately granted to Richard Harding. Notwithstanding this grant, it appears that this religious establishment was not forsaken by the Cistercian monks as late as least as 1628, and that it was subject to the Cistercian Lord Abbot of Holycross, whose predece-sors were mitred abbots and peers. We find that, subsequent to that year, the reverend Father John O'Dea was appointed abbot here. O'Dea was a Cistercian monk, and formerly of the Irish college at Salamanca. Approved in life, morals, and learning, he embraced the monastic rule under Father Luke Archer, Lord Abbot of Holycross, in compliance with a vow he made the 4th of January, 1618. When forty years of age he was appointed vicar to the parishes belonging to Holycross Abbey, and is said to have written some treatises of no great importance. He could not have been abbot of Corcomroe previous to 1623, for there is still extant a note of his having been parochus in Holycross that year; but he was probably abbot in 1628, as we are told he ceased to be parochus at Holycross, and was succeeded in that office by Malachy Foratell, who continued to officiate therein until 1628. This account of O'Dea I have gathered from a vellum MS., written in 1640 by Father Malachy John Hartry, and mentioned in Harris's edition of Ware's writers. This MS. belongs to the Roman Catholic archiepiscopal library at Thurles. I have lately been favoured with the inspection of it by the present learned Roman Catholic prelate of that see. It was a long time in my possession previous to the appointment of the late archbishop. I shall have occasion to allude to it more fully hereafter."

At Oughtamama, about a mile from Corcomroe, there are three churches of an early date:—

"The windows and doors," writes Mr. Deane, "are of same type as the earliest structures at Glendalough. The largest is 47 ft. by 22 ft., with chancel 21 ft. by 17 ft., the masonry of massive character, some of the stones being 7 ft. long. In the angle of nave and built into wall is a curious font. The corbelling of eaves is peculiar. The second church is 24 ft. long by 14 ft. wide, with masonry of same character as No. 1. Of the third church little remains. The repairs to these churches are much the same as heretofore described; removal of ivy and trees from the walls; pointing where necessary, and protection of tops of walls with concrete."

Should ivy in every instance be removed? Indeed an argument could be founded on the query, and, perhaps, an interesting and instructive one. Doubtless ivy, where it is let grow for long years undisturbed, will work damage to a building, and often entirely envelope its walls. There are a number of our anti church restorers partial to ivy, and would resent as an act of Vandalism the stripping of a ruin of its ivy covering. There is no doubt that ivy gives a picturesque and possibly an antique and venerable look to a church or abbey. In our own opinion a partial covering of an old building with ivy is permissible so long as it does not injure the masonry or destroy the architectural effect. Indeed our modern ecclesiastics, rectors, and vicars are most partial to the cultivation of ivy, and a new church is not well out of the builder's hands when the gardener is called in to plant a number of ivy plants for the purpose of covering the new naked brick and stone work as soon as possible. We are free to confess a large

number of our *jejune* Gothic churches would be the better of an ivy covering to hide their defects. Ivy will be found to preserve as well as destroy. On old buildings where the roots insinuate themselves between the joints of the stone work, rupture and displacement sooner or later are inevitable. In respect to modern churches—buildings in constant use, no difficulty need be experienced in keeping the ivy within due restraint; but as regards ecclesiastical ruins, the conservation must get the better of the ivy, or the ivy will get the better of the building. Nevertheless, we must admit that we have an old regard for the ivy plant, and we would not advocate its wholesale destruction in connection with our national monuments and ecclesiastical ruins.

We stop here for to-day, but in the meantime we invite notes from architects and antiquaries in the various localities as to the character of the works of conservation.

#### EXHIBITION OF SANITARY APPLIANCES AT CORK.

THIS exhibition, which was open for four days of last week, during the gathering of the members of the British Medical Association, was held in the grounds of the Queen's College, the new palm houses being utilised for the purpose, with the addition of some shedding and a large marquee.

The exhibits, although not very numerous, still many of them had the charm of novelty. It was much to be regretted that the time allotted for the get-up of the show did not allow a catalogue to be prepared, and the visitors felt seriously the want of such a guide. This omission, we must say, the honorary secretaries are not responsible for, every effort on their part was made to get things in proper order for the display. The exhibitors had no reason to complain as to the space provided for them; their goods were so arranged in the new glass building that the smallest exhibit could be thoroughly examined by the visitor. We shall now proceed, as promised, to pass under review some of the principal items submitted.

The first in our note-book is "Patent Linoleum Muralis," the invention of Mr. F. Walton, Sunbury-on-Thames, exhibited by the agents, Messrs. Silthorpe and Son, of this city. This new material for wall decoration possesses qualities which are most desirable in adding to the artistic effect of rooms. It is, we are told, more durable than wood, and, like it, will not cast or warp. It is impermeable to water, india-rubber entering largely into its composition. The material may either be left uncoloured, or tinted with soft colors chosen not to simulate any other product, but to give a perfect and classical impression of its own; it is flexible, and can be carried round curves and corners—a quality which marks its superiority over papier-mâché and carton-pierre. An inspection of this indestructible wall decoration at the Dublin show rooms of the agents is recommended.

The stand of Messrs. Maguire and Son, of Dawson-street, attracted large numbers. Although generally well known, it may be advisable to repeat here that this firm have lately introduced a system of sanitary reform which has so far proved a success, and which we must afford space briefly to describe. It consists in a careful examination of any building so as to discover the exact condition of its sanitary arrangements, and a report to

the owner, specifying the works necessary for the purpose of insuring immunity from dangerous sewer gas, and supplying an approximate estimate of cost. They had on view a peculiar trap, which appears to act well in excluding sewer gas, and at same time admitting fresh air. Another article exhibited was their "Improved Receiver and Disinfector" for receiving the wastes of baths, basins, and sinks, and at same time separating them from the drain; it is well worthy a close examination. They also brought under notice their "Patent Extracting Cows"; models of closet arrangements; samples of improved soil pipes; their model closet, the perfection of simplicity; &c., &c.

Mr. Isaac Shone, C.E., had several colored diagrams of his "Pneumatic Sewerage System," with pamphlet giving particulars as to the method proposed by him. We are not of opinion that it can be adopted generally in cities or towns.

We had also drawings of Mr. Alfred Fryer's methods of utilising the refuse of towns. They embrace three separate processes, and by their combination they "offer the most effectual and the most profitable means known for the disposal of refuse; every product is valuable—no nuisance is created—no stores are accumulated—no residue is left—the spread of infectious disease is prevented." We hope it will be tried in this city.

Mr. John Dodd, of Liverpool, exhibited samples of his patent ventilated closets, which, being valveless, and having no other mechanical appliance or arrangement, cannot get out of order. His "Duplex Stench Trap" appears a good one.

The samples of artistic wall paper exhibited by Messrs. Woollams and Co., of London, attracted attention, and from their position could be closely examined. These papers are guaranteed to be entirely free from arsenic. The firm were awarded a silver medal, Paris, 1878.

The "Universal Invalid Bed," shown by Messrs. Pocock Brothers, of Southwark-bridge-road, London, is a valuable addition to the sick room. This invention consists of a series of separate and distinct cylinders, any diameter, and suitable length, made of waterproof material, either for water or air as may be desired; these fit into a case, which keeps them side by side, but slightly apart, and in this way a bed or cushion can be made of any size. It thus forms a water or air bed, or it may be a combination of both, for some of the tubes can be filled with water (hot or cold) whilst others may be filled with air. It possesses many advantages over other invalid beds, and is cheap.

Messrs. Defries and Sons, London, had a large stand in the marquee, on which were well displayed samples of their Prize Medal Filters, at all prices. The Silicated Carbon Filter Company also had some samples of their wares.

Messrs. Edmundson and Co., of Capel-street, showed the process of making gas for lighting country houses, villas, &c. The light produced by "The Atmospheric" Gas Machine (Wigham's Patent) is about equal in illuminating power to coal gas. Its quality was well tested in the admirable locale where the machine was placed, the machine itself occupying but a small space.

Amongst the local exhibitors were Messrs. Perry and Son, Patrick-street, who had a



variety of stoves and grates; Thomson's Patent Sash Fastener; Cheavin's Ventilator, which received a Paris medal; Ewart's Ventilator; Moule's Earth Closets, Invalid Couches, &c., &c. Mr. G. W. Keller, of Old George's-street, had baths and pumps by Llewellyn and James, Bristol. On Mr. D. Sheehan's stand there were beautiful samples of Belleek pottery, which were much admired by the fair sex. There were some tiles, designed by the students of the Cork School of Art, exhibited, manufactured, we believe, by Messrs. Minton and Co. Messrs. M'Kenzie had pumps, washing machines, and ventilators.

There were many other exhibits, for notices of which we have not space.

### EXHIBITS AT NEWRY.

#### ROYAL AGRICULTURAL SOCIETY OF IRELAND.

THE annual show of the Royal Agricultural Society, which was opened on the 6th inst. at Newry by the Lord Lieutenant, may be considered a fairly successful one as regards the display of cattle, sheep, swine, flax, poultry, dairy and farm produce, and agricultural implements. Of exhibits, however, connected with building wants there was rather a scant supply. The arrangements on the whole, all things considered, were creditable. Messrs. Wardrop and Sons, contractors, Dublin, erected the shedding, &c., and their work gave satisfaction. Among the exhibitors of agricultural implements were several local manufacturers and importers, and some well-known firms in England and Scotland contributed a number of machines and implements used in farm and kindred works. Connected immediately with building wants the Bessbrook Granite Company exhibited some well-executed granite monuments, granite for building purposes, and granite gate posts. Mr. R. A. Jones, of Warrenpoint, had on view some Irish porcelain Belleek ware, and photographs of local scenery. Mr. John M'Arevey, of Newry, had a good display of drawing-room and bed-room furniture. Messrs. M'Kenzie, of Dublin, besides farm appliances, had on view some exhibits suited for general wants, wire fences, pumps, lamps, &c. A. and J. Main, Dublin, exhibited ornamental gates with pillars, and a large iron hay barn of about 40 ft. long by 20 ft. wide and 16 ft. high; the roof was corrugated galvanised iron, with iron columns and arched lattice. The Newry Iron Foundry Company exhibited an improved compound condensing engine (Rennie's Patent) capable of working up to 130 horse-power, and also a horizontal condensing engine of smaller power. These engines were made to order, and are intended for driving the machinery of some local firms. Messrs. Kennan and Sons, Dublin, had, among their exhibits, several greenhouses, with the most recent improvements for heating. Their wire fences and appendages attracted considerable attention. This firm had also on view a large galvanised hay barn, with iron wall-plate and gutter combined, curved roof, and columns, &c. Some good specimens of native coach building were exhibited by Mr. Isaac Stewart, of Newry, Taylor Brothers, Armagh, and George, Slye, and Co., of Ennis-corthy, Wexford. The machines and appliances connected with agricultural purposes were numerous, and there were many exhibits of a most miscellaneous character; but these

do not call for particular notice at our hands. The local *Telegraph*, it may not be amiss to state, contains full details of the proceedings at Newry.

### PUBLIC WORKS IN IRELAND.\*

#### THIRD ARTICLE.

RESUMING. *Re* Landed Property Improvement, Mr. William Bond reports on the County Longford, and states that the only properties on which drainage works of any importance have been carried out are those of Lord Annaly, Mr. Richard Cooke, and the Rev. F. T. Gregg, which are now nigh completed. Several farm residences and offices are stated to have been "built or repaired" on various parts of Lord Annaly's estate, and the Messrs. Fitzgerald have built a range of offices on one of their farms, and are building "a substantial residence on another." Mr. Bond has not made many inspections. He reports that labour has been more abundant than usual in his district, but the past winter has been greatly against works of all kinds.

Mr. James J. Poe reports upon the County Tipperary and part of Clare, and says though last year was a trying one to landed proprietors and farmers, the same steady progress as he previously noticed is observable. Loans for thorough drainage have increased in the last year, and also those for labourers dwellings and farm buildings. He states the attention of proprietors has been given to provide better dwellings for their labourers, and small tenants. Loans for a large amount have been made to the Earl of Huntington in the King's County, and Mr. Smith Barry and some others in Tipperary. Loans have been also had for additions to and in part building residences suitable to the requirements of the borrowers on their farms or properties, which have been largely supplemented by the owners. The inspector writes: "Labour has been rather easier had, but good tradesmen are obtaining high wages, and though this has been the case for some years past, still I notice that there are not as many young men going to trades as formerly." It would be instruction if the inspector could afford us some reason why there are not as many young men as formerly in his district going to trades. Has emigration reduced the population greatly, and the class of young men that formerly went to trades in Tipperary and Clare, or have they elected to turn to farm work? Next year we hope the inspector will give us some reasons for his statement, or state his own opinion on the subject, for it is not an unimportant one.

Mr. Edward Townsend reports on the counties Galway, Mayo, Roscommon, and part of Clare, and he affords us some useful statistics or figures worth quoting. He made a number of preliminary and progress inspections, and certified for work to the amount of £23,002 odd. Of this sum £7,508 odd was expended on drainage, reclamation, and other land improvements, and £15,494 odd on the construction of offices and farm dwellings and cottages. He tells us that good farm dwellings have been erected by Mr. Nicholas O'Connor, of Dandermot; Mr. Robert Percy French, of Mouivea Castle; Mr. Kilkelly, of Mosfort; Mr. J. Neville Bagot, of Ballyvoe; Mr.

Glancy of Frenchlawn, and Mr. John D. Blake, of Brooklawn, Tuam. "Stewards' houses and labourers' cottages have been constructed on a good plan" by Mr. Robert Percy French, of Monivea; Captain Blakeney, of Abbert; Mr. Barton Persse, of Moyode Castle; Mr. Christopher Talbot Redington, of Kilcornon, and Colonel Irwin, of Rathmoyle. Portland cement concrete was used in the construction of Colonel Irwin's cottages. We are told also that "some fine farm offices" have been built by Mr. Worthman, of Moyne; Mr. O'Kelly, of Coloo; Captain Charles Howe Knox, of Creagh, and Mr. Roche, of Rye Hill. "A good deal of thorough drainage has been carried out in a superior style" by Mr. Pakenham Mahon on his estate near Strokes-town. The inspector observes that "the lowering of the River Suck, which operation has already commenced, will enable large tracts of land to be thoroughly drained in the County Roscommon." Mr. Hardy, of Dartfield; Mr. Hynes, of Woodmount; Colonel Daly, of Raford, and Mr. MacDermott, of Ramore, have drained a considerable quantity of land. With regard to Mr. Hyues, he "has carried out in the most successful manner the system of shoulder drains in high bogs, which mode of treatment, being very effectual and inexpensive, is well adapted for such soils in this country." The inspector finally writes that there seems a general disposition on the part of land owners in the west of Ireland to improve their estates, "now that the labour has somewhat reduced in price." He is also confident that the facilities offered by the Land Improvement Act will in future be largely availed of. Doubtless if Mr. Townsend has in future as many kind words to say respecting the landowners in his district as he has in the present report, there will be no lack of borrowers among his friends, and we opine some of them will go in largely in renewing their applications. Well, if the moneys are wisely expended, and if the agricultural population is benefited as well as the land, we will have nothing to say but a good word. At the same time we would like to see a large increase in the number of labourers' dwellings in the western counties. Now that concrete can be used extensively, and that the materials of it are in abundance, it is simply a disgrace to see such a number of wretched mud hovels existing all over the country. Such a sight is not creditable to the landed proprietors.

Mr. William Sidney Cox reports on the County Limerick, and portions of Clare, Tipperary, and Cork. He made during the year six preliminary and thirty progress inspections, certifying for an expenditure of £9,038 odd, of which sum £5,580 odd was laid out on land improvement works, and £3,457 odd on building works, being an increase in the former service of £2,471 odd, and a decrease in the latter of £41 odd upon the previous year's outlay. The number of applications for loans was in excess of that of the preceding year by four. The inspector states that land improvement loans are being much sought after, and that this is mainly owing to the fact that proprietors who have availed themselves of the facilities afforded them by the act "for draining, lining, and otherwise improving their properties have expressed themselves thoroughly satisfied with the beneficial results." The price of labour in the districts remains the same, and "with few exceptions I found the works

\* "The Forty seventh Report from the Commissioners of Public Works in Ireland," &c. Dublin: Alexander Thom. 1879.



executed in a most efficient and workmanlike manner."

Mr. Henry Stokes reports on the County Kerry, and states that the whole of his progress bills, including some small excesses over loans during the year, amount to £12,340 odd, showing a falling off of £1,762 odd compared with 1877. The land improvement has more than doubled, having risen from £2,537 in 1877 to £5,553 in 1878; while the outlay on agricultural buildings has fallen off from £11,565 to £6,797 in the same time. We do not like to have to chronicle the above falling off respecting agricultural buildings, whether they relate to farm offices or labourers' dwellings. The following notes are of interest:—"Building with gravel concrete has been carried on extensively, and expensively, too, by Mr. Crosbie on his Ard-fert estate. The work is very good, but I doubt the financial success of the investment made, regardless of the expense. Mr. Mahony, of Dromore, has built with concrete almost exclusively, but his buildings, under several loans, are suitable, and his material the cheapest to be had, so as to be a complete success in every way. He has given up the use of slates, and put up the corrugated Roman tiles on six blocks and single houses, and is preparing to roof his tenants' thatched houses with tiles wherever they agree to his conditions, registering the improvement as his own, thereby setting a most useful and important example. Mr. Bland, of Derryquinn, has several roofs of the same kind made, and nearly ready for inspection, and will take the same course with his tenants." The inspector thinks that the most advantageous works to which these loans can be applied is "planting for shelter," but it has not been attempted to any useful extent except by Lord Kenmare and Mr. H. A. Herbert, near Killarney, and Mr. Rae, at Keel, "although the profits of the Killarney woods are generally known to be enormous." In all the plantings in this county the fir kinds are said to grow remarkably well in the worst rugged, boggy, and rocky land, where cultivation is impossible and reclamation would not pay. Quoting the report, "Many instances can be shown where spruce trees thirty-five years old, of like quality as Canadian deals, have grown in such land to 60 ft. high, containing one and a-half tons of timber measurement. Such results prove what a valuable resource is totally neglected where profit and investment can be expected out of the most barren land that it would seem quite visionary to hope for." It appears that the great bulk of the expenditure in this county has been made by the proprietors on land in their own occupation, and any that have been made for tenants are on the condition that the rentcharge shall be paid by the tenant. There has been no attempt made by tenants at applications for loans with the proprietors' sanction last year, and the inspector believes there will be an increase in the number of proprietors' applications in the present year.

We now come to the last of the reports—that by Mr. J. T. Cornwall on the Counties Cork and Waterford. The progress inspections are stated to be the same as the preceding year, the very severe winter being greatly against getting the work done. The buildings executed have been chiefly labourers' cottages with some few farm houses and offices, and repairs of same. The works are reported to have been generally executed

in a satisfactory manner, the advantages derived from improvements generally acknowledged as well as the benefits granted under the acts. Finally, the inspector observes that:—"A growing desire is showing itself (notwithstanding the very bad season and harvest) on the part of the small proprietors and lease-holders to obtain loans for the improvement of their farms."

In concluding our subject, we may remark, that the inspectors' annual reports *re* Landed Property Improvement, as a whole, are very useful, though there is much sameness of description about them. Were we to classify them as regards their merit, there are some of them which would not deserve much praise, but among them there are a few which bespeak care and labour in their preparation and an evident desire on the part of the writers to furnish useful information. We will not be invidious in naming those inspectors who are in constant habit from year to year in furnishing very poor reports, or of others who are inclined to "draw the long bow" in respect to the improvements carried out by certain well-known landed proprietors. Praise, of course, should be given where it is justly due, but there are some folks, no matter what may be the extent of their works or improvements, are sure to meet with the annual eulogy on the part of the admiring inspector. We would again observe, as we have done in former years, that we would like to see fuller practical information furnished by some or all the inspectors in respect to building matters. We want to know not only that a class of buildings have been erected, but we would like to be furnished with the dimensions, the character of the work, the materials, the amount of accommodation, cost, and other sundry particulars. Such vague terms as neat, commodious, substantial, good, &c., are not of much value. We are glad to record the growing utility of concrete, and its extending use in several districts, but we would at the same time like some of the inspectors to furnish us with particulars anent manipulation, cost, and some details in relation to concrete cottage construction, and other house-building improvements in sundry localities. Perhaps we are expecting too much from the officers of a board which is itself at present under a state of transition or change in regard to some of its services. Reforms come slowly, though they may be advocated for long years, but we shall end our running review by hoping with Shakespeare that "All's well that ends well" for the common-weal.

#### THE IMPROVEMENT OF THE BAR OF DUBLIN HARBOUR.

We printed a short while since a portion of Mr. John Purser Griffith's paper, read before a meeting of the Institution of Civil Engineers, on "The Improvement of the Bar of Dublin Harbour by Artificial Scour." We have now to hand the paper as a whole, with an abstract of the discussion thereon published by the Institution. Mr. Griffith's paper is a very valuable one, and will hereafter have an increased value as a reliable record of the works initiated and of others carried out during the last century and a-half for the improvement of Dublin Harbour. Accompanying the paper there is a folding sheet showing the features of the harbour and bay at different periods. We have Captain Bligh's and Sir J. H. Paine's map or scheme in 1800-1801; Sir John Rennie's scheme, 1802; Dublin Bar in 1819, 1856, 1878, and the harbour also in the last-named year. There is given, too, a longitudinal section of the great North Wall

and cross section of harbour entrance, a curve showing the increase in depth in Dublin Bar since the construction of the great North Wall, and a comparative longitudinal section from Carlisle Bridge to Dublin Bar for the years 1819, 1856, 1878. The nine figures or illustrations in the folding sheet have a high value in themselves even if viewed apart from the paper. We will take an early opportunity of dipping into Mr. Griffith's excellent contribution to the history of the growth and improvement of the harbour of Dublin, but meanwhile we commend his paper to the attention not only of brother professionals, but all others who take an intelligent interest in the subject of which it treats.

#### CARNALWAY PARISH CHURCH.

This church, a neat edifice with tower and spire, was originally erected at the cost of John LaTouche, Esq. It contains a tablet to the memory of Captain Cooke, who fell while charging the insurgents at Kilcullen Bridge in 1798. A new chancel with organ chamber has recently been completed from plans by Messrs. M'Curdy and Mitchell, Mr. Thomas Waldron being the contractor for it and sundry other improvements. The opening of a new organ supplied by Messrs. Telford and Telford, of St. Stephen's-Green, brought together on Sunday last a very large congregation, when a collection was made to defray a small balance remaining due of the expenses.

#### DESIGN FOR GATE LODGE.

With present issue we give south-east and south-west views of a gate lodge of an ornate character proposed to be erected at Johnstown-Kennedy, Rathcoole, Co. Dublin, from designs by Mr. R. A. Gray, architect. The material will be Dalkey granite with limestone dressings.

#### LAW.

##### ACTION FOR RECOVERY OF FEES.

CITY RECORD COURT—AUGUST 6.

*M'Connell v. Reardon.*—Action brought by Mr. Henry M'Connell, building surveyor, 42b Great Brunswick-street, to recover the amount of his fees for measurements and valuation of restoration to the premises 75 Grafton-street, some time since destroyed by fire. It appeared from the evidence that defendant obtained £1,050 from the West of England Insurance Company, through the agency of plaintiff's services, in discharge of his claim for compensation for loss to building, fittings, fixtures, and utensils by said fire—viz., £575 for building and £475 for fittings, &c. The plaintiff's claim for fees amounted in all to £29 5s., which was at the rate of 2½ per cent. on the amount received by defendant, and a charge of £3 3s. for one day for negotiating the settlement, which he alleged were below the regular fees of surveyors for such services. Defendant alleged that plaintiff had (contrary to his instructions) taken £30 less in compensation for loss by fire than he (defendant) was entitled to; but plaintiff produced his (defendant's) unqualified written authority to settle the matter with the company's surveyor, Mr. Selfe, and stated that the settlement was a liberal one.

The jury found for plaintiff in the full amount claimed.

Counsel for plaintiff—Mr. J. A. Rynd (instructed by Messrs. Lawlor Brothers). For the defendant—Dr. Houston (instructed by Mr. Rosenthal).

[If we remember aright, a fire occurred a couple of years ago in Dame-street in the establishment of a trader bearing the same name as defendant in above case, and the "salvage" stock took some six months to dispose of in two "monster" houses.]



## ADVERSARIA HIBERNICA,

## LITERARY AND TECHNICAL.

It is well that the fame or the reputation for good or ill of artists or others is not dependent upon the voice of the ordinary race of contemporary critics. There are few men, indeed, who in their day cannot command a good word from somebody. Eulogists are often as plentiful as detractors, and mere detraction or disparagement ought not to be too readily believed in, for mediocre ability on the part of the well-to-do and influential often secures a eulogy, where decided ability on the part of the poor and struggling genius meets faint praise or none at all. It is curious, too, for one who has lived between forty and fifty years in this world to look back for a quarter of a century or upwards, and observe the changes that have taken place in the opinions of men respecting the talents of artists who once practised in their midst. Names that once were accounted great, and abilities that once were highly eulogised, are now gradually accorded the smallest degree of merit; and again, genius and talents that once were ignored are now acknowledged. The truth is, that no amount of unjust disparagement can destroy for good the genius that speaks through a man's existing works. The literary man or the artist may die with his merits unacknowledged; but posterity will one day do him justice, despite of the heap of detraction piled upon his name and grave. Time, too, will relegate mediocrities to their proper place, no matter what may be the titles which they once held, or who the influential personages that backed them.

In the sister kingdoms as well as in this country, within half a lifetime, once-distinguished names have gone down rapidly in public estimation, and several almost unknown ones have come rapidly to the front. Diverse opinions within the last thirty years in this country have been held respecting some of our Irish artists, painters, and sculptors. Hogan, the sculptor, among his own countrymen has had his detractors as well as his eulogists during his lifetime; and Moore, the sculptor, while living, had many friends and admirers who were ready to praise his works without stint. Thirty years ago in Dublin the artist of that ill-starred statue in College-street had obtained a reputation which went on increasing for some years longer, but to-day Christopher Moore's Thomas Moore, as a likeness or as a creditable work of art at all in any way, is scouted by the many. Alas, for fame! But still it may be asked, Was not Christopher Moore, the sculptor, an artist of respectable talents, although his statue of the poet is accounted a failure?

Here is a bit of contemporary criticism from the columns of an evening paper published in Dublin thirty-six years ago, and still existing:—"The monument erected to the memory of the late John Philip Curran in St. Patrick's Cathedral, Dublin, has just been completed, and as a work of art is a credit to the country, an honour to the eminent artist (Mr. Moore) who executed it, and worthy of the illustrious name which consecrates it to the reverence of future generations. This monument is a cenotaph of white marble, representing a section of the granite tomb to which the mortal remains of this great man have been consigned in the cemetery at Glasnevin [after their removal from St. Pancras, London, where they lay for several years after his death]. The tomb is itself a fine *fine simile* of the tomb of Scipio Barbaticus, and bears a strong resemblance to that erected at St. Helena over the remains of Napoleon. The marble cenotaph in St. Patrick's—executed by Ballantine the elder—is annexed to the wall, and is surmounted by a noble colossal bust of the illustrious dead, from the chisel of our celebrated countryman, Moore; and it is said by many of the most distinguished connoisseurs in the art, who have compared it with the bust of Chantrey, to be far superior to the work of that eminent sculptor. It is, indeed, a piece

in which the spirit and character of the man seem to live and breathe; and to those who remember his features—no less eloquent than his tongue—it will be a pleasure and a surprise to find how faithfully both lineament and expression have been transferred to marble after the lapse of so many years. Upon the whole, it is a work that stamps Mr. Moore as a first-rate artist. The late Dean Dawson, to whom application was made for permission to erect this beautiful monument, took a lively interest in its advancement."

The above bit of criticism is certainly highly laudatory of the abilities of Christopher Moore as a sculptor. He was "an eminent artist," "a celebrated countryman," "a first-rate artist," who executed a colossal bust superior to the bust of Chantrey. Well, in 1857, when the statue of our national poet was erected in College-street there were some laudatory criticisms, too, of the work of Christopher Moore. The sculptor, however, lived to see before his death his genius denied and his latest public performance fiercely attacked. The late William Carleton, the novelist, espoused the cause of Hogan, and vehemently assailed the committee by whose decision the statue in College-street was handed over to Christopher Moore. Carleton's were bitter words, but we quote from memory: "A committee of artists, forsooth!—artists who should never take a brush in one hand without having a shoe in the other!" Moore, the poet, and Moore, the sculptor, Hogan and Carleton, and others who were interested in Irish art thirty years since and much less, are all gathered to their forefathers; but it is the duty of the critics of our time to judge honestly, though men may fail in some of their works to give the unspeakable dead that degree of justice to which their other successful labours entitle them.

What a mountain of thought, toil, disappointment, bankruptcy, and ruin the catalogue of our Patents represents! and yet, buried amidst the huge and unwieldy pile of our British patents are several of an important character—designs and processes which, with a little improvement and modifications, changes in materials and forms, could be made successful. Alas! thousands of hearts have beat high with hopes, and beat in vain, for brain and blood and bone are not indestructible. Men have toiled and toiled on for years, until the last pound was nigh spent, and old age and poverty dawned at last on the hitherto unconscious thinker, toiler, and experimenter. Shipwrecked and stranded, the unsuccessful passed out of sight and perhaps out of mind, and the moneyed man came the way anon and reaped the scientific harvest that the poor paralytic sowed.

Between thirty and forty years ago one M. Thenard submitted to the French Academy of Sciences a communication on the means of remaining for a long period in a limited quantity of air by the absorption of the carbonic acid gas exhaled, and the renewal of oxygen in proportion to its consumption. Of course at the time it was a well-known fact that the carbonic acid gas exhaled, and which in excess becomes fatal, may be absorbed by lime; but it is necessary in the purification of air to replace the oxygen, which is the vital principle, as well as to get rid of the excess of what is injurious. The great object to be obtained in cases where, as in diving-bells, it is important to make the same limited volume of air pure for several hours, is to produce oxygen with ease and certainty. M. Thenard proposed to employ oxygenated water, and he showed, we are told, that not less than 375 times the volume of water of oxygen gas may be compressed in this vehicle, and subsequently liberated as required. To produce this result, it was stated great care and expense were necessary, and, when obtained, the difficulty of preventing the escape of the oxygen, when not wanted for immediate use, also very great. Several improvements have been made in diving-bell apparatus since the time of Smeaton, the engineer; but still the diving-bell is suscep-

tible of great improvement for the safety of the users.

The reproduction of atmospheric air was a problem well worth studying; but M. Thenard's and Dr. Payenne's experiments upon living under water by reproducing pure air fit for respiration, fell far short of the promises or practices of their predecessors of a century and upwards previous.

In Bishop Wilkin's "Mathematical Magic," published in 1691, may be found the following startling statement:—"Mercennus tells us that Barricus, a diver, who had lately found out an art whereby a man might easily continue under the water for six hours together; and, where ten cubical feet of air will not serve another diver to breathe in for half an hour, he, by the help of a cavity not above one or two feet at most, will have breath enough for six hours, and a lantern scarce above the usual size to keep a candle burning as long as a man pleases. As for the many advantages and conveniences of such a contrivance, it is not easy to recite them. 1. 'Tis *private*; a man may thus go to any coast of the world invisibly without being discovered or prevented in his journey. 2. 'Tis *safe*; from the uncertainty of *tides* and the violence of *tempests*, which do never move the sea above five or six paces deep; from *pirates* and *robbers*, which do so infest other voyages; from ice and great frosts, which do so much endanger the passages towards the Poles. 3. It may be of very great advantage against a navy of enemies, who by this means may be undermined in the water and blown up. 4. It may be of a special use for the relief of any place that is besieged by water, to convey into them invisible supplies; and so likewise for the surprisal of any place that is accessible by water. 5. It may be of unspeakable benefit for submarine experiments and discoveries."

We fear that the secret or art of Barricus died with him, if it ever existed at all. Before the age of steam, railways, telegraphs, and iron vessels, the art found out by Barricus would have been gladly availed of by fighting kings and nations. Indeed at present the secret would be well worth knowing and the art worth practising, for peaceful as well as warlike purposes. A number of mason divers who could work for six hours under water could lay a good length of foundations, and a seaman in the navy of the Barricus stamp in the past could work frightful havoc to the "wooden walls" of England. What a valuable art now would not be the above for torpedo practice on the ribs of armour-plated monsters! But enough. Wilkin's "Mathematical Magic" was not all a mere pastime. We of this self-conceited and over-belanded nineteenth century are unwilling to credit the past with any sagacity, experience, or foresight; yet our thinkers and workers are pilfering what they can from the storehouses of their predecessors. Even the pages of our poets and novelists have been utilised by the brain-pickers of the present day, and Swift's "Gulliver's Travels" and "Tale of a Tub" have yielded to inquiring minds some grains of precious metal worthy of melting and hammering into form for the wants of the time.

Pendant to the above we find in a news paragraph of a public journal of 1843, the following in respect to experiments in the diving-bell:—"Dr. Payerue, attended by General Pasley, made descents in the diving-bell lately at Spithead, to the depth of twelve fathoms, and afterwards to the bottom, from which pieces of wood were brought up. They remained there for twenty-one minutes, entirely shut out from all communication with the atmospherical air, the doctor, from the action of some chemical agents which were contained in a box, of about a cubic foot in size, having kept up a healthy respirable air in a larger quantity than was requisite for the support of himself and the general. Water gained rapidly on the inside of the diving-bell, which Dr. Payerne remedied by taking with him some cylinders of highly-condensed atmospherical air, which, as the



diving-bell descends, is evolved, and in consequence the water, notwithstanding its pressure on the atmosphere in the bell, is entirely kept out of it. Several other parties went down with like success."

Possibly our posterity may yet witness bottled sunshine as well as air. Bottled talk has become a reality, if the telephone articulates truthfully when tapped. When we succeed in walking upon the waves without webbed feet and maintaining our perpendicular, as also winging our way like the lark in mid air, the acme of invention will be reached, and perhaps the beginning of the end will be witnessed. Man, we fear, will still hunger for more; and if told upon his death-bed at the age of eighty that science at last made it possible for the dead to revisit the world, he would avail himself of the opportunity if it presented itself. II.

### THE POLDOODY LIGHTHOUSE WORKS:

HOW THEY WERE DESIGNED, WHO THEY BELONGED TO, AND WHY THEY WERE NEVER COMPLETED.\*

My uncle was in some respects a scourge; he had a source of annoying fun somewhere in him that should come out, and whether he was in the gout (which was always) or irritating my brother Tom, he never rested. He had reared us, and we loved him. His chief income was his oyster beds. Tom, being the eldest, was sent betimes to Trinity College, Dublin; whilst I had to imbibe all I could in the way of learning from Mick Burns, at the Point, though I must say Mick imbibed more than I did.

Tom had not been long homo from his Alma Mater till a queer notion entered my uncle's head. "Ben," said he, "them robbers at Carney won't leave me an oyster, unless we can get a light." Although generally pretty well able to fathom my uncle's meaning, I was a little at sea here. But Tom struck in with a pompous observation that light was to be traced to many sources. He had seen it produced in glass cylinders by the sudden plunge of a piston. "O, bother your cylinders!" said my uncle; "do you know anything about a lighthouse?" "Yes," said Tom; "we read that Sesostrius built a tower at Alexandria in the time of the Pharaohs, and ever since in polite society where the *belles lettres* are cultivated the name 'Pharos' for a lighthouse has obtained." "Why, then," said my uncle, "pon my conscience this is too bad! In my young days we never made use of such a word before ladies, whether in connection with a letter or anything else! However, as you know so much, can you build a lighthouse?—answer me that!" "It is a subject," said Tom, "requiring consideration. There are matters of gravity to be computed, impact to be overcome, the flow of the waves and the rise and fall of the tides must be accounted for, and I will have to prepare a specification for reference to a learned man, a schoolmaster in the County of Carlow, who will, I have no doubt, on my representation produce a problem based on whatever data I shall be able to get for him, when you have permitted me a recognizance of the site of your proposed Pharos." "Whew!" says my uncle; "if that does not bang all! I knew two men from the Ballast Office in Dublin who could knock you up a lighthouse without any of that sort of gladiating. One was a blacksmith—his name was Hunter; and the other decent creature was Saunderson. Believe me, it was little they cared about Hayros or Phayros! I was at the building of one down there at O'Connell's, in Kerry, at a place called Hog's Head, over Cahir Daniel. I put in a pleasant time long-line fishing at the Pigs' Rocks, and an odd time at the lighthouse with Saunderson." "The method of building pursued by the ancients in Kerry is lost in the mist of ages: witness the Staig and other forts," said Tom; "they built for

all time, and made an allowance in their north and south diameters for the contraction which is insensibly but certainly going on in our sphere—*mutatis mutandis*. We entered into it some time ago; and supposing the present length of the inch to represent 1·023987, at the time that John of Callan whitewashed the fort in 1261 (the year in which he met with the untimely end through having a difference with Mr. McCarthy, of Kenmare), the fort will be a perfect circle, as computed by Professor Tibbs, in about four thousand years!" "Why not say St. Tibb's eve at once?" said my uncle. "Ah, Tom, Tom, Trinity College has not improved you! Saunderson didn't bother his head with such stuff; he and old Charley just stuck a bar in the ground and got a rope. 'How much?' says Charley. 'Always 12 foot,' says Saunderson. 'Aye, aye,' says Charley; 'two radiuses aiquels one diameter,'—and then he'd tie the rope in the middle to the bar, and take a smoke; and M'Kenna would go to work, and build by it, and a lovely, fine, round, circular house they made. To be sure, the rope was never the same length two days running, but Saunderson said that improved the contour. They were mighty clever men; I wish I had them here now, and it's little I'd care for your Carlow schoolmaster—who, I hear, examines French glass with English gin—and his problems." "The revolution of a cissoidal curve of Diocles is not to be regarded lightly," said Tom. "I think more of the revolution of a decanter," said my uncle. "But is my bed to be robbed and my choice poldoodies, every one of which would take six men to swallow, left to the tender mercies of the men of Carney, whilst you are talking bosh, of no consequence to anybody, not even to the owner?" "Uncle," said Tom, "I will lose no time in carrying out your wishes. I will obtain the requisite formulae, and calculate the strains, regarding the cylinder as a revolving spindle of recticulated lattice-work, each hyper-induced point in the radiated periphery answering to a similar super-induced apex of a convoluted cone." "Oh, Lord!" said my uncle; "is that all?" "No," said Tom; "when I have arrived at the exact height that the waves attained to on the day the early Christians of Bristol landed at Ringsend, and have succeeded in discovering the copper bolt in base of Poolbeg Lighthouse referred to in the Ordnance Survey, with the corresponding bolt in the plinth stone of the swing-boat in the garden of the ancient hostel of Doyle at Rathmines, I will then have data to compare with that by which Doctor Haughton calculated the height of the tide on Good Friday, the 23rd of April, in 1014, the day the Battle of Clontarf was fought; and we will commence the lighthouse with the vernal equinox." "Thank you, Tom," said my uncle; "a thousand thanks; and don't forget a formula to calculate the strain upon my poor nerves whilst listening to your damned nonsense!"

I now ventured on a remark as to a lighthouse I had seen made on the basketwork principle. "Aye," said my uncle, "tell us about that." "Well, sir," said I, "you remember what a rage there was for iron lattice-work some years ago?" "I do," said my uncle, "—in the ladies' petticoats! They were called 'Let us alone,' though 'pon my conscience it was a quare way they went about it!" "Ah, sir," said Tom—

"They want the wild, sweet briary fence  
Which round the flowers of Erin dwells,  
Which warns—"

"Behave yourself, Tom," said my uncle, "and let Benjamin go on with his story about the rage for lattice-work!" "Yes," said I; "they made a lattice lighthouse from seeing some man in Dublin making a lattice-work telescope." "Ah, now, Benjamin, that will do," said my uncle; "who ever heard of a lattice-work telescope?" "It's a fact, sir," said I. "First, when they got the lighthouse up, it looked very nice and scientific; but when they took down the scaffolding, the top sank 9 in., and a corresponding swelling came in its—" "Abdomen," said my uncle. "Yes, sir, and it shook like jelly!"

"What?" said my uncle. "The lighthouse, sir," said I. "Oh!" said my uncle. "Well, sir, they then put two hoops round it." "Ah," said Tom, "the resources of science are wonderful!" "Go on, Ben," said my uncle, "and don't mind that fellow's interruptions." "Well, sir, then it had three—" "Take care," said my uncle; "three what?" "Protuberances," said I. "Well, and what then?" "Well then, sir, I regret to say, it fell!" "Oh, Lord!" said my uncle; and what became of it?" "Well, sir, Jerry Mulligan bought it for old iron, and made it into horse-shoes; and there were a lot of besotted English soldiers in the place, and the officers were Royal Engineers from Limerick—pampered wretches!"—and they laughed, and I felt it very much. "Well," says my uncle, "that flogs all!" "I much regret I did not see it," said Tom. "I would have read a paper on it at the Royal Institute of Irish Architects." "It would have much amazed them, as Shakespeare says," said my uncle.

It was some months after this that he again thought of the lighthouse, and brought Tom on the carpet. "Tom," said he, "are them plans ready?" "Well, sir," said Tom, "the fact is, that although I have got my calculations complete in a general way, and have copied designs made for a tower on the Coningbeg Rock, in Wexford, by a poor fellow who knew too much, and was put out of the service for knowing more than his brother officers." "Was that legal?" said my uncle. "Was he examined by two doctors? Did he get the benefit of the Treasury minute of 30th June, 1859? Was he actively employed after his superannuation was declared?" "I don't know," said Tom. "Well," said my uncle, "I may know nothing about science; but I have not held the commission of her Majesty (God bless her!) for past forty years without knowing something of law; and if that poor fellow you speak of had not two eminent physicians to examine him and report on him, and if he was not dealt with as directed by the Treasury minute I have mentioned, your cousin Frank M'Donough, the Queen's counsel, of Ballina, is just the man to bring him any time within six years back and restore him to the office he was deprived of." "I am glad to hear it," said Tom, "for there never was a man so cruelly treated; and this design, which I have copied from his notes, with his permission, and which is peculiar, was sent to London some years ago, and never sent back, and something like it is now being utilised at the Eddy-stone Rock, off Plymouth. Still I am a little in doubt as to the proper centres of the hypopyral and hyperpyral series of zones from whence I propose to reflect the light on the oyster beds. I am also in doubt as to the bricks with which to line the tower. I have observed some minute yellow spots, which, you know, are silicate of lime." "Did you find any carbonate of lime?" asked my uncle, with a grin. "Ah, sir," said Tom, "I perceive you are pleased to be facetious. Of course you are aware that the heat of the brick kiln would effectually dissipate the carbonic dioxide, and leave the quick lime." "Aye," said my uncle; "and what about the silica? Would it stand the heat like a Saly-mander or a *dharg lugar*? I fear, Tom, it's not all gospel they teach in their new-fangled schools. I would rather judge of a brick by one clout of Tead Bradley's trowel than by all your formulas and chemical theories. Could you chemistry for me a tumbler of punch, for indeed I am dry and depressed at all I have had to listen to?" "Whether would you prefer to have *mistura spiritus vini Gallici* or a saturated solution of the whiskey of commerce?" said Tom. "The latter, if you please," replied my uncle. "And now, Tom, as we have waited so long, and the Rs have come into our months, and the oysters must be gathered for Ostend, London, Colchester, and the County Clare, we will give up the idea of building the lighthouse for the present; and if your poor friend is to be had that you mentioned just now, ask him to come here, and we'll have a picnic to Oyster Island, and he can see his

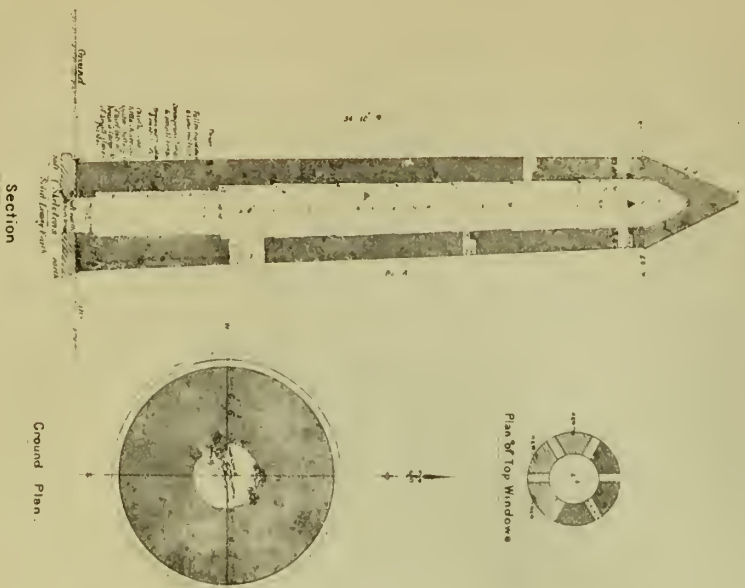
\* Written expressly for the IRISH BUILDER by Ben. Bulben, Esq., of Sligo.



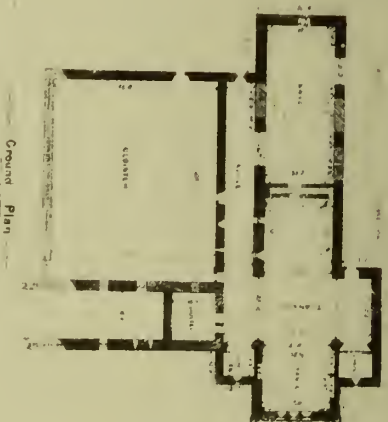
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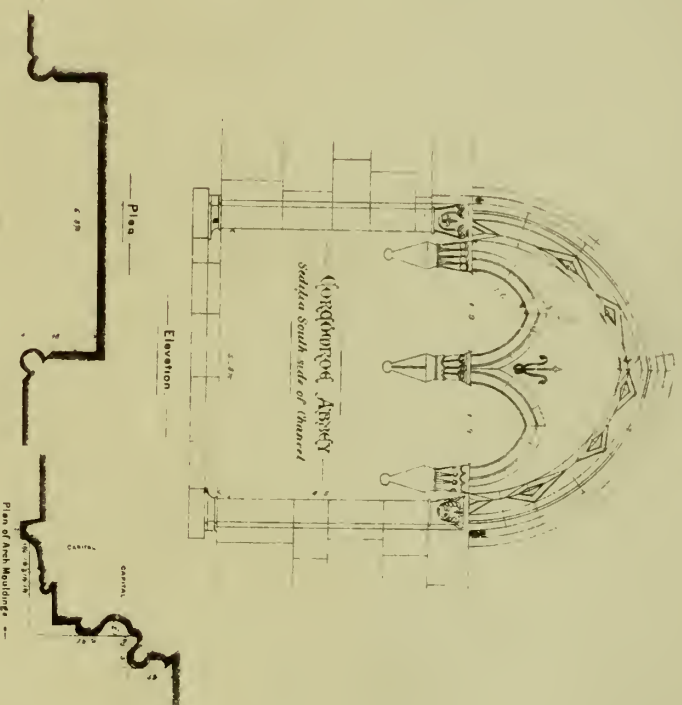
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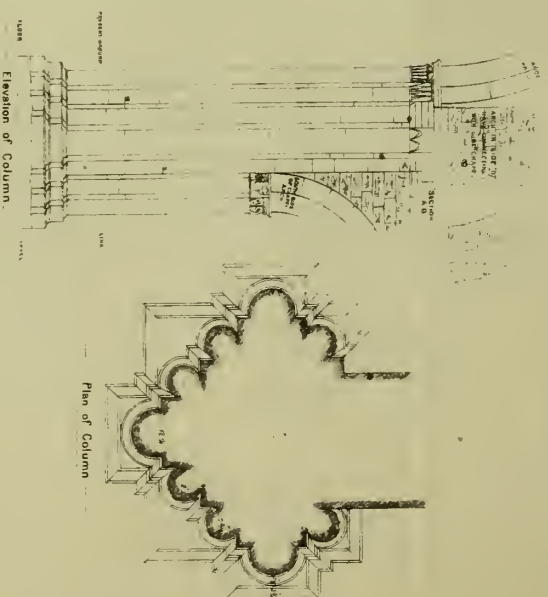
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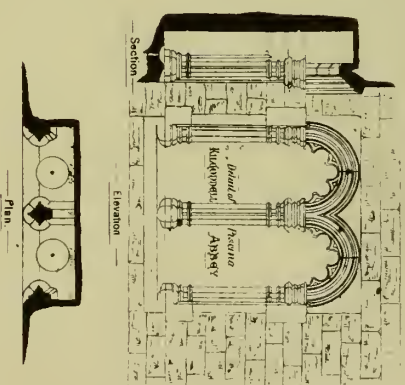
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Sculpture South side of the wall



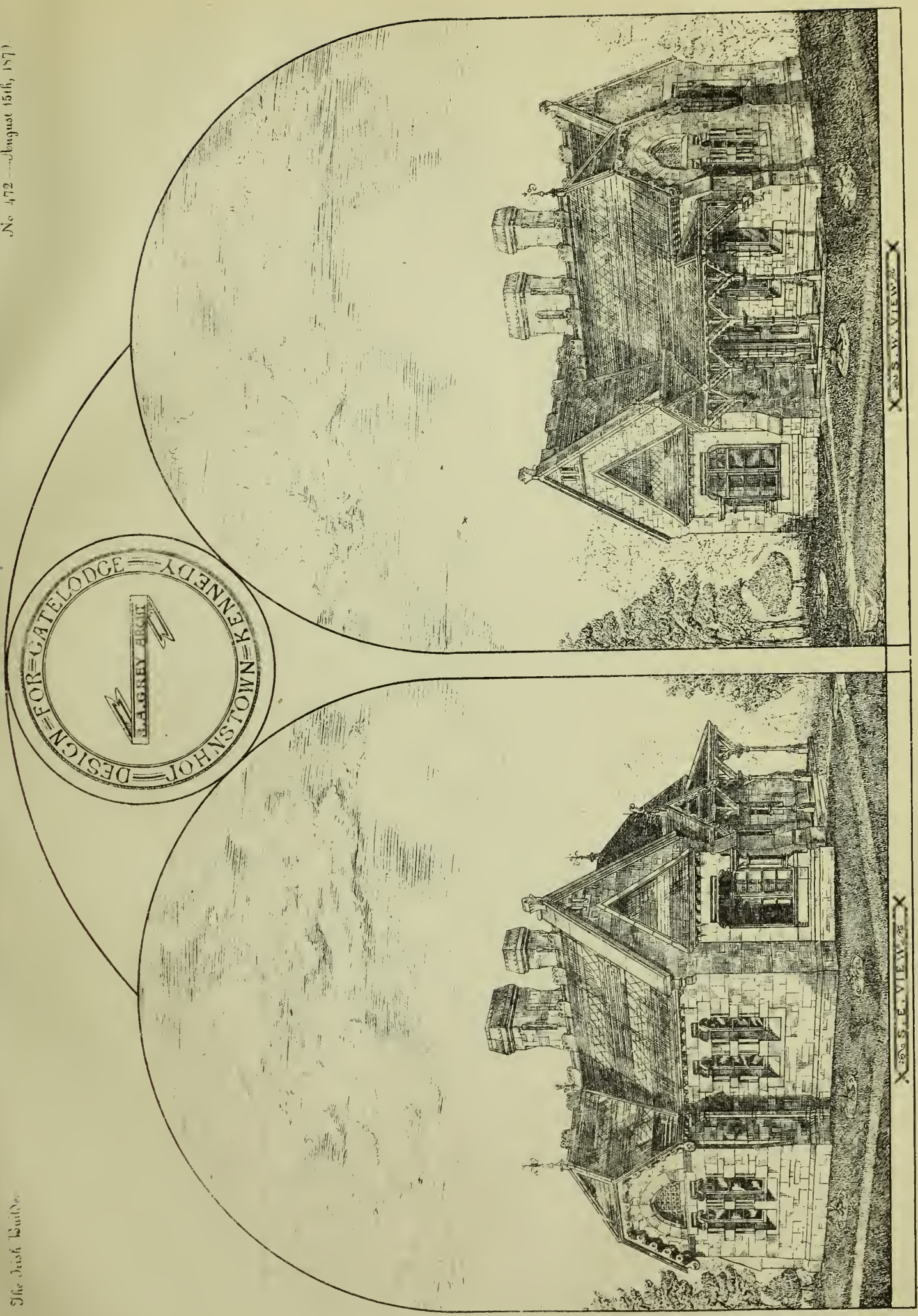
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old friend the Metal Man;—but advise him by all means to avoid any illegality or breach of the Superannuation Act by doing a stroke of work for his late employers without being well paid! and not to forget the *lex talionis*.”

Σ.

## DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.\*

### LECTURE I.

#### *Situation and Construction of Houses.*—

It is only necessary for me to make a few introductory remarks about climate. Although few persons can choose what part of the world they will live in, a considerable number are able to decide in what part of the country they will reside. Other things being equal, the nearer a place is to the sea, the more equable is the climate, and the further inland the place is, the more is the climate one of extremes; so that those who wish for a moist, equable climate, with warm winters and warm nights, will choose a place by the seaside; while those who wish for a more bracing atmosphere will go further inland. In England, too, there is considerable difference, as is well-known, between the climate at various parts of the seaboard. Thus, the western coast, being exposed to the winds which pass over the Atlantic, and to the action of the moist, warm air which passes over the course of the Gulf Stream, has a warm, moist atmosphere, and a heavy rainfall; while the eastern coast, which is swept by winds that have passed across Siberia and Russia, and have only the narrow strip of German Ocean to pass over before they reach our coast, has a dry, bleak, and comparatively cold climate.

For the same reason, too, the exposition of a house or the way in which it faces, is a matter of great importance in this climate, as is well-known; a southern exposition, for example, being warm and genial, whilst an eastern one is just the reverse.

In the neighbourhood of forests, the air is damp during a great part of the year, from the enormous amount of evaporation that takes place from the leaves of the trees, and Humboldt tells us that the large forests on the banks of the Amazon are perpetually covered with mist. Other things being equal, a bare, open country, is drier and hotter than a well-wooded one.

I will divide the soils, for sanitary purposes, into two kinds—pervious and impervious; those that allow water to pass freely through them, and those that do not. Pervious soils are such as gravel, sand, and the less compact and softer limestone, which allow water to pass through their interstices, and chalk, in which the water, for the most part, travels through the fissures; and the typical impervious ones, such as the various clays, mostly named from the localities where they are best known. Most of the metamorphic rocks and the hard limestones are non-porous, but have a multitude of crevices, through which the water finds its way. In the former case, the water which falls on the surface passes readily through the soil, until it comes to some impervious stratum below, over which surface it passes, until it either finds outlet at the surface of the ground where the impervious stratum crops out, or until it reaches the nearest watercourse, so that above the impervious layer, which has arrested its progress through the rocks, there is a stratum of water of a depth which will vary with a variety of circumstances—a stratum which can be reached from the surface of the ground by digging wells down to it. This water we call the “subsoil” water, or the ground water (*grundwasser*). In some instances, the impervious stratum just spoken of is placed in such a manner as to prevent the escape of the subsoil water at all, in which case the soil is said to be water-logged. The water which falls on the impervious soils, on the other hand, does not sink into the ground, but remains on the surface, or runs

off if there be a suitable incline, and so such soils are necessarily damp. The diseases that are prevalent upon the pervious soils are enteric (typhoid) fever and cholera; during epidemics of that disease—diseases, in fact—the poisons are chiefly communicated by means of drinking water; and the readiness with which the subsoil water just mentioned can be contaminated by the percolation into it of foul matters from the refuse of habitations, combined with the fact that people who live on such soils, as a rule, drink water from wells dug in them, no doubt accounts for the prevalence of those diseases.

On impervious, damp soils, on the other hand, consumption, the great plague of our climate, which kills more than half as many people as all the communicable fevers put together, is prevalent, and so are lung diseases of various kinds, rheumatism, and, under special circumstances, ague. It has been clearly shown that dampness of the soil under the houses is one of the great factors in the production of consumption. Dr. George Buchanan (see 9th report of the Medical Officer of the Privy Council) demonstrated that in every instance where the level of the subsoil water in a town has been lowered, that is to say, where the distances between the basements of the houses and the level of the water in the soil had been made greater, the death-rate from consumption had decreased—in one instance to the extent of not less than 50 per cent., so that there can be no question that it is extremely important for everyone who can to live upon a dry soil. Where, then, the soil is not pervious to a considerable depth below the basements of the houses, so that the level of the ground-water comes within a few feet of them, or where the soil, being itself pervious, is naturally water-logged, or in the so-called impervious soils, which are, of course, all pervious to some extent, it is necessary to provide means whereby the level of the water shall be kept below a certain minimum depth from the foundations of the houses. This is done by drainage, and by a drain I mean a pipe or channel that is intended to remove the water from the soil. It must, therefore, be a pipe into which the water can get—that is to say, it must be pervious to water. The object of drains, then, is twofold, to carry off the surface water, and to prevent the subsoil water rising above a certain height, for as soon as it rises to the level of the drains it finds its way into them, and is carried away to the outfall at a lower point.

Drains may, therefore, be made of stones placed together without cement, as was the case with the Cloaca Maxima, the great drain which was constructed by the second king of Rome to dry the ground around the Forum; or of brickwork, with or without mortar; or, as is very commonly the case, of pervious agricultural tiles. The surface gutters must also be mentioned in connection with the drains, and they are, of course, especially necessary on impervious soils. The ultimate destination of the drains is into the water-courses, streams, rivers, &c.

So much for natural soils; but, especially in the neighbourhood of most of our large towns, many of the houses are built upon artificial soil, or “made ground” as it is called. This made ground consists of the refuse of dust-bins, ash-pits, midden-heaps, and the like, which is shot at some place where the ground requires to be raised. It is very undesirable that houses should be built on any such made-ground, at any rate for a considerable period. There is no doubt, however, that, after some time, the action of the air and water in the soil causes a slow decomposition of the organic matters in it, and renders it less objectionable as a site for building purposes. Nevertheless, no one would choose to live in a house built upon “made soil” if he could help it.

The proximity of buildings is the next matter to be considered. It is important that houses should not be too near together, as otherwise both light and ventilation are interfered with, and it is now a regulation in the metropolis that a new street shall be at

least as wide at the houses on either side of it are high, and that no new street shall be less than 40 ft. wide.

Having determined the site on which to build, we come next to the foundations. These should not be on made ground, nor on purely vegetable soil, as peat, hamus, &c. Their depth is a matter which it is the architect's province to determine, and depends upon various circumstances, such as the weight they have to support. The material used must be the best concrete. The inferior kinds, made with too little lime or cement, crumble away, allow damp air to pass through them, and make the house unwholesome, besides endangering the structure. It is important to remark here that a house should not be built, or even its foundations laid in frosty weather, for the work will not hold when a thaw sets in.

*Basement.*—The covering of the ground with some impervious material is imperative, in order that the moist air from the soil may be prevented from rising into the house. In the case of made soils, the covering of the ground should extend for some distance round the house. This covering is best made of concrete some inches thick, and should be used in all cases, whether there are any under-ground rooms or not. Such underground rooms or basement floor should be only used as cellars—not as living rooms—and should always be arched. The concrete floor may be covered with asphalt, tiles, or York paving, but wooden floors should never be used below the ground level. The walls of the house, below the level of the ground and a little above it, should be made with exceptionally good materials, and set in cement, so as to be as impervious as possible to damp. This is a matter that is very frequently lost sight of, and the walls below the level of the ground are frequently made of the worst possible materials. Being hidden from sight, it is often considered that the best materials need not be used for them. It is advisable to have a damp course in the walls all round the house, at a little distance above the ground level, whether the site be a damp one or not. This damp course may be made of asphalt, stoneware, or slate set in cement. Cement alone cannot be depended on. If such a course is not placed in the wall, moisture will rise up through the bricks by capillary attraction, and make the walls of the house damp, rendering the house itself unwholesome. The inner side of the walls in the basement floor may be advantageously made of glazed bricks or of hard black Staffordshire bricks, but no covering of any kind whatever should be placed on those walls. The money should be spent on good construction, and not on covering up bad materials. There should be a dry area all round the walls of the house outside, starting from the concrete foundations. Its width is a matter of little importance, as it is only required to ensure dryness of the walls below the level of the ground, and the ventilation of the cellars in the basement, unless, indeed, the basement rooms are inhabited, in which case, at any rate, the regulations of the Public Health Act must be complied with. This area must have proper connections with the land drains to allow of the removal of the surface water. The materials used for building the walls of the house depend upon the locality. They may be bricks, stone of various kinds (the choice of which must be left to the discretion of the architect), and, in some parts of the country, flints. Bricks stand fire better than anything else, for the simple reason that they have been already burned. This fact was remarkably shown in the great fire at Chicago, where the brick houses remained comparatively intact, while the granite ones were utterly destroyed. In any case the materials should be set in mortar or cement, and in wet and exposed positions the walls should be double or “hollow” walls, as they are technically termed. Occasionally, in such positions they should even be slated on the outside, or covered with glazed tiles. Walls are sometimes made of concrete, a

\* By Prof. W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.



very ancient plan, and not modern, as is commonly supposed. The Romans frequently used concrete walls in their aqueduct bridges and other constructions. The cement used was of extraordinary hardness, and has, I believe, never been surpassed, even if equalled, in later times. It might be called the "cement of the Romans," as the term "Roman cement" is now commonly applied to a very inferior article. In making concrete columns, the Romans adopted the practice of inserting layers of their flat bricks, which we should perhaps call tiles, at intervals, and they faced the surface with stones, generally disposed after the fashion known as *opus reticulatum*. This consisted in placing small cubical blocks of stone against the surface of the concrete, so that the sides of the exposed faces were not vertical and horizontal, but the diagonals were, thus giving the appearance of network, or of a chess-board set up on one corner. These devices assisted greatly in protecting the structure from the weather, and from rough usage. Such walls may also be very well faced with tiles of various kinds.

The chimney flues should be as straight as possible. They should be separate from one another—a matter very often not attended to—and they are better lined with pipes, as these are much more easily cleaned; an up-draught is more readily established in them, and they completely disconnect the flue from the structure of the house, and so help to prevent destruction by fire.

It is important that the chimneys should be higher than the surrounding buildings, so that the wind may pass freely over them, and that they may not be sheltered from its action in any direction whatever. If this is not the case, there will be a down-draught in the chimneys when the wind is in a certain direction, and the more the chimneys are sheltered by high buildings the more chances there are of down-draughts in them. If necessary, an iron or zinc pipe called a "tall-boy," may be placed on the top of the brickwork, to increase the length of the flue. This is sometimes even carried up adjoining buildings, and is, as a general rule, better without a cowl of any kind on the top of it, as will be further explained hereafter.

**Flooring.**—Fire-proof floors are most desirable. They may be made of concrete or brick arches between iron girders, in which case there is no space between the flooring of one room and the ceiling of the room below. When timber is used, it should be dry and well-seasoned, with sound boarding, to ensure separation between the rooms, and to prevent either water leaking from the floor to the ceiling below, or air passing from the room below to that above. Good flooring evidently serves to protect the ceilings of rooms below. Where there is space between the flooring and the ceiling, and still more especially where a wooden flooring is placed over a concrete or other foundation laid on the ground, it is necessary to provide for ventilation of the space below the flooring. This is usually done by placing a perforated iron grating, instead of a brick, here and there, in the outer walls, so that air can pass freely in or out below the floors. For this purpose bricks with conical holes through them, would no doubt be found very useful.

**The Roof.**—This may be constructed either of fire-proof materials, or of timber, and in either case may be covered with slates or tiles, or may be thatched; copper or corrugated iron are also used. Sometimes zinc is used on account of its cheapness. It is not a good material, as it does not last long. Lead is largely used, especially upon flat roofs, and is valuable on account of its lasting properties. Where there are eaves, it is important that they should not drip on to the walls, but project, so as to throw the water off. Cornices and all projections should be constructed so as to throw off the rain, or it will run down the walls. If this is not done, the walls will be continually damp and dirty. Rain-water gutters may be made of lead or iron. They must have a sufficient fall, and shoot directly into the heads of the rain-water pipes. They should

be wide enough inside to stand in, so that the snow may be cleared out. If this is not done, it will accumulate, blocking up the channel, and when the thaw comes the melted snow will work its way through the tiles or slates of the roof, and injure the ceilings below.\* Rain-water gutters should not be carried through the house from one side to the other, and especially not through bedrooms. Nor should they be carried, as is sometimes done, round the house inside the walls, and through the rooms. A more or less disagreeable smell is frequently noticed in rooms through which rain-water gutters pass. The rain-water pipes also should be outside the house. They should be of iron, well jointed. Galvanised iron ones are preferable; they are only a little more expensive and last much longer. They should either discharge into rain-water tanks, which must be well ventilated, or on to the surface of the ground or area round the house. They should not be connected directly with the drains or sewers. Neither should they be placed with their hoppers or heads just below the bedroom windows, especially if they discharge into a tank. Large and high houses, especially if standing alone, require to be provided with lightning conductors. Copper ones are better than iron, and need not be so thick. They must be insulated from the walls of the house by suitable rings of some non-conducting material, and end in some moist place in the soil. In the case of an isolated house it is also a good plan to have a weather-cock on the roof, and connect that with a registering apparatus in the hall. An anemometer is also useful.

Thus far about the construction of the building itself. We now come to the finishing off inside. The floors should be covered with boarding—oak bees-waxed being the best, or deal, stained and varnished, may also be used. The joints are better tongued. Parquet flooring, made of teak, may be placed over the whole of the surface, the object being to ensure, as far as possible, a uniform and impervious surface, without cracks or badly-made joints, in which dust can accumulate. This is especially important. Either of these plans is better than the common one of covering the whole floor with a carpet or drugget. When these are used, a border of stained and varnished or polished boards, or of parquet flooring, should be left all round the room. This has the advantage that dust does not accumulate so readily in the corners, which are more easily swept and cleaned, and the carpet can be taken up at any time to be beaten, without moving the furniture which is against the walls. The skirting boards of wooden floors should be let into a groove in the floor. This will serve to prevent draughts coming through, and dust accumulating in the apertures, which are invariably formed by the shrinking of the joints and the skirting. Some floors, such as those of halls, greenhouses, &c., are best tiled.

**Wall Coverings.**—These, like the floors, are better made of impervious materials which can be washed. Tiles form an admirable wall covering, and are, moreover, a permanent decoration. Various kinds of plastering, with the surface painted, form a cheap and effective wall covering. Paint containing lead should, of course, not be used, but the silicate, or the indestructible paints, and zinc white should be used instead of white lead. Paper as a covering for walls has the disadvantage that, as a rule, it cannot be washed, and that the dust collects on it. For this reason, after a case of infectious disease, it is necessary as a general rule to strip the paper off the walls, whereas a painted or tiled wall can be washed. Many papers, too, are coloured with arsenical paints, and seriously affect the health of the persons living in the rooms, the walls of which are covered with them.

**Ceilings.**—For these plastering is in most general use. It is better painted than discoloured. Whitewashing, however, answers

\* The remark as to the width of gutters does not apply to caves-gutters.

very well, and can be repeated as often as necessary. Paper should not be used for covering ceilings. If they are of wood it should be panolled, or the joints will let dust through. The wood work generally throughout the house should be stained and varnished, polished, or painted; and generally I may sum up the principles to be followed in finishing off the inside of a house, by saying that the materials should be, as far as possible, impervious, and the surface smooth and uniform, and so disposed as to be easily cleaned, and not to collect the dust.

#### ANENT THE VARTRY.

WHETHER the supply of the Vartry water to our citizens is a blessing or the opposite, we will not now discuss; but, apprehending how few there are who know what the "Vartry" is or where it comes from, we will make our great and popular circulation the medium of conveying the information. We do so the more readily, having received the following communication from a valued correspondent:—

"Being fortunate enough to be favoured by the late H. B., of Wicklow, with an invitation to accompany himself and daughters to the scene of the proposed reservoir for supplying Dublin with water, on a delightful morning, in July, 1865, he called for me at the Green Tree Hotel, and we set off with the good spirits that fine weather and scenery generally impart. Our road lay through Rathnew—that strange assemblage of successful squatters, by Ballinalea, Nuncross, and Annamoe, to Roundwood, or Togher, as 'tis sometimes called. (Here we stopped at Keane's hotel to order dinner and put up the horse.) It is north-west of Wicklow, and by the road we went 12½ miles—about the same distance as it is from Bray. A few steps from the hotel brought us in sight of the intended reservoir—a wilderness of filth and ruin: two groups of mud cabins particularly attracted our attention, and for my part I thought with a shudder on the probable consequences of using water collected in such a basin; and when afterwards I saw the colour of the liquid in Dublin, I was not at all surprised, nor do I think that this generation will ever procure healthful water from that reservoir. Thirteen years passed, and I never could prevail on myself to drink of the saturated solutions of innumerable pigstyes and all the ills that flesh is heir to, with other horrors indescribable, given to displace the limpid waters of Lough Owel, the Dodder, &c.

"In the charming suburb of Clontarf, where I have resided for years, nature has been most beautiful, and the Calpe rock has springs that afford to the inhabitants water unrivalled in purity. Witness Brian Borohme's, St. Dennis's, and other wells and pumps innumerable, one of which supplies my family. Some weeks ago, owing to the constant rain, some surface impurity percolated to the well, and for the first time in my life I had to resort to the Vartry. I found the flavour unpleasant, a perceptible effluvia, and had an illness that the never-failing stomachic instinct ascribed, and truly, to the water. In a short time our native spring recovered its tone, and how joyfully we welcomed its sparkling refreshment once more only they can know who, like ourselves, have had to abandon for a time the pure, life-giving 'fons' for the polluted sewage of Roundwood and its adjacent ancient and dissolving hovels!

"During the five years the works were in progress, this was the dwelling-place of the hundreds of workmen and their families engaged in the operations. The area of the reservoir is 412 acres, and it is capable of containing 3,000,000 gallons, its circumference being about 3 miles. The embankment which crosses the valley, the tunnel to Callow Hill, and indeed all the works connected with the undertaking, are excellent,



but the water itself is bad; and on this point there are many opinions. The first citizen who appears to have had the courage to honestly broach the subject is Mr. Edward Gatchell, and no doubt from his well-known respectability his words will have weight. In 1868 the canal supplies were discontinued—a very improper act, one would think, but by it the citizens were forced to take the Vartry water. The north city basin at Blessington-street would be now available for the Glasnevin, Drumcondra, and Clontarf townships; and an experience dating from 1786, when Milne, of Edinburgh, built the city basin, and gave to the people the filtered waters of the Dodder,\* with the supplies afforded by the erection of the Richmond Basin at Portobello in 1812, is sufficient to prove the superiority of the former over the present water, given at a high rate of death and cash to the city; and it would be far better for the health of the inhabitants to return to whatever faults the old supply had than persist in continuing the present unwholesome, unpleasant, and unrefreshing water.

"I often wonder what has become of our wells and pumps. Geologically, Dublin is singularly fortunate in her position: a boring made almost anywhere in the city will tap the calpe rock, and find water. About Christ Church and the Carbric, it is true, deep turf bog intervenes; but the original chancel of that edifice, long lost to posterity, stood on the gravel, the crypt only extending so far eastward as the deep bog rendered necessary. The wells of Darcy's and Guinness's breweries are stupendous works, and yield a never-failing supply; but the various springs that were known to the citizens forty years ago appear to be forgotten,—for instance, the beautiful well at the Stove Tenter House between Cork and Brown streets; one at the bottom of the steps leading to the crypt of St. Mary's Abbey, of which I had a refreshing draught a very few years ago; and its neighbour, Carton's pump, Halston-street; the pump at the Linen Hall, and in Johnstone and Tonge's coach factory in Britain-street; and the spa outside Grattan's house at Portobello (with the watercress and oaten bread). In any other city these gifts, so lavishly bestowed, would be cherished, and, as in Paris, utilised for the benefit of the people. Photographers are especially "bothered" with the Vartry.

"The River Vartry rises on Donce Mountain, in the County of Wicklow, and, being assisted by a stream from the Great Sugar Loaf, which it meets at Ballinastoe Bridge, and several smaller ones as it goes along, pursues its course past Roundwood, through the Devil's Glen, under Nuncross Bridge, between which and Ballinalea it meets a further accession from Moneystown and Carrick mountains, and, passing Ashford and Newrath bridges, debouches at Tinakelly Lower, on the Murrrough of Wicklow. I suppose the history of no other city could furnish anything so truly absurd as the waterworks of the Vartry when the greater facilities the city possesses are taken into account, and the degree of scientific knowledge we are supposed to have arrived at. I believe some consider that the Vartry rises on the south side of the greater Sugar Loaf; but it is not till the two streams from that and Donce Mountain meet at Ballinastoe that they become of any consequence."

#### INCHICORE LOCOMOTIVE WORKS.

WE have in former years given some particulars of the growth of Inchicore, and the progress of the locomotive works carried on there by the Great Southern and Western Railway Company. On Saturday last a pleasant reunion of employers and employed had been arranged to commemorate the

auspicious event of the completion at the works of the one hundredth engine. It is now some years since the directors of the company decided on manufacturing their locomotives and carriages on their premises, and the design has proved a decided success. The company are now able to save about £400 on each engine they manufacture, as compared with the prices they would have to pay otherwise. Under the direction of Mr. Alexander M'Donnell, C.E., the locomotive engineer, about 1,200 men are daily employed in the company's works. At Inchicore quite a town has sprung up, almost entirely inhabited by the company's workmen, for whom cottages have been built. These are rented at a comparatively low figure, and present a very marked contrast to the condition of the tenements unfortunately occupied by too many of the artisan class in Dublin. Saturday afternoon was devoted to holiday pursuits and to festive sports, which were largely attended by the men and their families, and honoured with the presence of the chairman of the company, Mr. J. C. Colvill, and several directors, shareholders, and heads of departments. At five o'clock the guests, to the number of about 100, sat down to a very excellent dinner in the reading-room, which was prettily decorated for the occasion. Mr. Alexander M'Donnell, C.E., presided, and in proposing the toast of "Prosperity to the Great Southern and Western Railway Company," gave an account of the works at Inchicore and their growth. "They had met that evening to commemorate the hundredth engine that had been completed there since 1866, for it was in that year they turned out the first engine of the pattern they were now producing. They had expended upon these very large sums of money, amounting altogether to £215,000. By doing so they had kept that much money in this country. He thought it was a thing which ought to be known that the Great Southern and Western Railway Company had established here workshops which enabled them to do this with profit. As they had built one hundred engines for £215,000, that gave an average cost of £2,150 for each engine; the average cost of each engine was £1,784, and of each tender £313. The total amount they had spent upon their engine shops, independent of their saw-mills, carriage and wagon shops, was a little more than £26,000 for the shops themselves, and £21,000 for the machinery in the shops—a total of £47,000. So that if they had done nothing but engine building they would have paid something like 9 per cent. upon the shops. But during that time it must not be supposed that they had been mere engine builders; during the last two years, since the commencement of 1877, they had built of what they called carriage stock (including brakes, cars, &c.) 40 carriages and 315 wagons, making a total in the carriage and wagon shops of 435 vehicles for ten years. He thought that also was giving to this country a fair amount of labour. He believed that the other large railway companies of Ireland would follow the example set them here. In addition to having done what he had told them, they had also done what he thought was probably nearly as valuable to the country. They had turned out 201 fitters and boiler smiths, who were now successfully earning from 30s. to 38s. a week, when only for their workshops they might have been obliged to earn their bread in the country at 12s. or 14s. a week." Other speeches followed on the part of the chairman of the company, Mr. George Pim, and the Rev. Samuel Haughton, S.F.T.C.D. There was also an address from the officers and workmen of the locomotive department, which was read by Mr. M'Donnell, chairman of the committee, expressing their sense of gratitude for the high honour they had conferred upon them in presiding at their dinner and the sports that day. They availed themselves of the opportunity to express to the directors their sincere thanks for the many advantages they had given them in the dining hall, reading room, &c., which had in

no small manner led to their advancement, and enabled them and their families to obtain amusement and recreation near their own homes. They assured the directors that the spirit of assiduous work, and the sense that they were working for good and honest masters would not decrease.

#### NATIVE ART.

DEVOTED as we are to everything connected with art, whether in the development of architecture or its kindred studies, it shall ever be our pleasure as journalists to record the works of those who attain to excellence in the production of "things of beauty which are a joy for ever."

Since our last publication we have had submitted to us by a professional friend and man of supreme taste a work of illuminating which we have seldom seen equalled. The artist, a young lady who has spent her life, so far, in "Carbery of a hundred Isles," shows what genius can attain to when untrammelled by the conventionalities of such places as South Kensington, and who paints from nature's examples, and not as those examples are generally rendered in the so-called schools of art and design, and which suffer the loss consequent on all translations. Miss Thomas, of Schull in the County Cork, adds one more to the list of those who, like the American, "West," or her own countrymen, Hogan, Barry, and McLish (or MacLise), rise above the difficulties of birth whether they be of locality or otherwise. The daughter of an engineer whose high attainments in geology have long been known in the scientific world as a faithful exponent of every fact connected with mining enterprise, she has inherited a natural taste, which could probably be assisted by a visit to the continental museums, but, beyond an acquaintance with the mere mechanical accessories, could scarcely be improved. From the address before us to the Rev. J. D. Lamont, with its appropriate and symbolical border of wild flowers (mingling the ferns of West Cork with the more cultivated products of the garden), the views of the places of interest in the locality, the misty airiness of Crookhaven, and Schull with the chiaroscuro of the background of Mount Gabriel, give in miniature a realisation often sought for in vain in more pretentious pictures. We augur well for the future of Miss Thomas, should she pursue the delightful course on which she has so successfully entered.

#### ON THE ANXIOUS SEAT.

A CERTAIN class of plumbers are very much agitated for fear that this journal should publish too much information for the benefit of the householder. A correspondent objects to some sectional views of buildings which we have printed, because he says "they would enable any one to hire a journeyman plumber and to fit up a house without the aid of a boss," and he seems to fear that if we continue our nefarious practice, the plumber's occupation will soon be gone. It is not very likely that a busy merchant or banker will take time from his business to inspect his soil pipes or prow around his cellar looking for leaks. They have no leisure for such matters, if they had the inclination. Should their attention be drawn to the need of having their houses secure from contagion, by anything they may read in our columns, the probability is in most cases, and we know it to be a fact in several, that they will send for a good plumber and let him examine if everything in their house is right, and if it is not, have him make it so. We may have been the means of lessening the amount of work done by poor plumbers, but we know that good men have no need to fear such a contingency. The more the public are enlightened the better they will appreciate good work. Few plumbers can explain the need of vent pipes, &c., to the average householder in such a manner as to convince him that they are not

\* On the north side of communion table in St. Catherine's Church, in Thomas-street, is a tablet to the memory of William Milne, architect, of Edinburgh, who died in March, 1790, having established on a perfect system the waterworks of Dublin.



trying to secure a job. Intelligent articles illustrated and from a reliable source, cannot fail to have influence. Any one is welcome to have work done in the manner mentioned by our correspondent, but he must expect to get his fingers burnt if he does so. A little knowledge is never more dangerous than in plumbing, as many over confident house owners have found to their cost. We would caution our medical periodicals in future, not to print any more descriptions of severe surgical operations, for fear some miserly invalid may hire a scribe doctor to do a similar job on contract, *materials supplied*, or at say fifty cents an hour, which is about what ordinary people value an architect's or other professional man's time. It is not well in an avaricious age to tempt people too much by the chance of saving a fee.—*Sanitary Engineer.*

## SUGGESTIONS FOR YOUNG BUILDERS.

### PART II.

(Continued from page 237.)

WHILST on the subject of Indian ink—that great staple of the draughtsman,—we will say a few words as to its preparation for use in the office. Should it be required for etching or writing (commonly called printing) or anything not to be coloured, its best medium is cold boiled water, a quart or two of which will be found most convenient, the absence of earthly matter making it particularly applicable to the mixing of the finer colours. In cases of drawings which are to be subsequently tinted, our practice has been to prepare the ink with hard or spring water, and when all the lines had been completed to clean off all pencil markings, writing, figuring, &c., and throw or dash plenty of spring water on the drawing, soaking up the moisture and removing it with good white (not patent) blotting paper. This will not only effectually prevent the lines from running into the colour, but equalises the tone or tint of the outline. A custom prevails in some offices of mixing acid with the ink; this is particularly requisite where the plans or maps, as in large surveys, are coloured in a different department, and are completed so far as the draughtsman's duty is concerned, with all lettering, trees, indications of rocks, &c., before the tints or washes are applied. It is most unpleasant when neat and carefully-executed writing, dotted boundaries, and ornament, work up in a smeared and most unsatisfactory manner. The method of using the acid is—into a two-ounce bottle of cold boiled water put ten drops of muriatic acid, and when you have rubbed up your ink, drop one or two drops of this mixture into it; we cannot give any quantity, as the size of the ink-saucer or slab must regulate that; but the tongue will settle the matter. The ink should taste *not* so acid as table vinegar. It must be remembered that the acid is destructive to paper and steel drawing and other pens, and should only be used of sufficient strength to obtain the desired object; and “in this the patient must minister to himself.” Tracings, whether on paper or cloth, should be coloured on the under or wrong side, and a very minute quantity of ox gall will in all instances facilitate the operation; a sixpenny pot from any artists' colour shop will last a lifetime, it being sufficient merely to touch the clean brush to its surface before stirring it up in the colour.

For tracings, and indeed for all work, the ink cannot be too black or glossy, and the draughtsman will find a great advantage in using quill pens; the most beautiful plans were produced before steel pens were invented. Crow quills are good, but apt to cramp the fingers. The better quill is called the master quill; it is the smallest in the wing, and is generally to be had at some every low price in the quill merchant's in bundles of about four or five score; it is a hard little quill, and, when scraped very thin, will split straight and fine, and with a sharp knife a pen may be made that hitherto manufacturers

have failed to imitate in steel. A friendly lithographic transfer writer can give valuable hints on this subject.

One word on pencils. Use Mordan's F, kept with a fine point for plotting and lining, and a B or HB of same maker, for remarks, sketching, and figuring. Give yourself the habit early of plotting lightly but firmly; take as much pride in the cleanliness of your first draft as in your finished drawing; don't spare paper to keep your work clean and prevent rubbing, and never use the rubbish called “ink-eraser” to the destruction of the surface of your paper. Keep a bit of india-rubber in your trousers' pocket; use it on your drawing very swiftly and lightly, and finish off with nice clean bread crumb. Oh! it offends one to the soul to see a poor young fellow labouring to clean off a drawing produced with a three H or perhaps five HHH wretched French pencil—a carboniferous production, inferior to a brickbat. French pencils generally are only fit for ladies who imagine they can write shorthand, tax collectors, policemen, or navy officers! If you should ever see anyone put a pencil or brush in their mouth, be assured that they know nothing of either. The best maker of black lead pencils that ever lived was Cohen of Charlemont Bridge, Dublin, but that is long ago (we don't allude to C. S. Cohen of the Exhibition of 1862). Years after his death (about 1850) we got a few of his pencils from Le Pettit, of No. 18 Henry-street, which he found in a long-forgotten drawer. After Cohen's, S. Mordan's; some of Faber's are pretty good, and when a lining pencil is got that will draw evenly and cheesily it should be carefully preserved,—the great test lies in the ease of its erasure, as above all things the draughtsman should preserve the surface of his paper intact, as on that depends much of the after success of the colouring of the drawing.

And now for the management of the paper. As we before remarked, Whatman's double elephant is the best—not that there are not other makers quite good enough for working drafts and office practice. For all ordinary work it is sufficient to secure the paper with pins; we can remember before they were invented, and sealing wax was used, the removal of which was a troublesome matter, and generally effected by a triangular piece of steel with a handle, which without scraping the board pushed off as it were the wax before it. When pins first came into use we gave as much as 5s. a dozen for them to Tickell, at 24 Upper, and to Buckley, at 14 Lower Sackville-street, the former being the favorite shop for young architects, for although one of the smallest it was one of the best in Europe; George (or buntz G. as we called him) selling nothing but the best instruments procurable. Dublin boasted then of about as many opticians as now, but had some really good *shopkeepers*. We may be excused for mentioning, Nelson, Sharp, Mason, Tickell, and Yeates—all men of the past. But to resume; if the drawing to be made is one requiring great exactitude, the paper should be pasted or mounted on the board; this can be done at the colour shops or where you buy the paper, but in general draughtsmen prefer doing it for themselves, and as the directions generally given in books recommending mouth-glue, &c., is the way *not* to do it, we will describe the way we do it. First as to paste, we prefer good starch made thick and stiffly, a generous-minded servant girl will do this better for you than you can do it for yourself; it is a *sine qua non* that she be well looking (no very plain person ever made good starch or paste). When the mixture is boiling drop in a morsel of alum, the size of a bean to a teacup full of paste; let this cool, taking care to stir up the alum well into it, and the same size of white resin is an improvement; then paste a sufficiency of slips of newspaper about an inch wide, and long enough to surround your paper; double up each slip with the pasted faces together to soak; then wet your drawing paper all over evenly with a sponge, and lay it wet side down on your board, turn up an inch

of the edge all round, and paste it evenly and lay it down on the board, and then unfold your newspaper slips, and lay them down so as to embrace your board and paper, half an inch on each, and leave all to dry; do this at night, and in the morning you will have a surface like ivory. To wet the paper evenly in first instance is a great matter as it then expands, and in drying contracts to a smooth surface. When quite dry, draw your “cutting-off” line square, and divide your working scale, which will remain relatively correct all through the course of your drawing. Our practice is to pin down a slip of paper on the margin, and on it make the scale, which we prick through to the mounted paper, and thus have a separate working scale; taking off dimensions with dividers from an ivory scale is tedious and rarely correct, especially with mounted paper. The changes of drawings on paper can readily be seen by an Ordnance map; the 6-inch survey of Ireland is engraved from plates 36 in. by 24 in.; no one need doubt the correctness of the margin line on the copperplate, but the differences of the sheets, from contraction and atmospheric influences, from the original is sufficiently apparent; and to take off measurements or computations from these sheets by other than the scale on each, is to incur certain failure, from their fluctuations from the standard. It is sometimes customary to get dry proofs, especially in the Royal Hydrographic Survey Office, for correction out-doors.

(To be continued.)

## STATUES.

### THE WHITESIDE.

THE clay model of the statue to the late Chief Justice Whiteside has been completed by Mr. Bruce Joy, and it is said to be an excellent likeness. The statue will be between 6 ft. and 7 ft. high. The late Chief Justice is represented seated in an arm chair in his attire as Doctor of Law, his right hand resting on his knee, and the left touching lightly the arm of the chair. The statue when finished is to be erected in St. Patrick's Cathedral. Another statue of the Chief Justice which is being executed by Mr. Woolner, and is subscribed for by the legal profession, will be erected in the Hall of the Four Courts in this city. Mr. Bruce Joy, the artist of the first-named statue, is a native of Dublin, and the son of a judge. He is at present engaged on a statue of the great Harvey, which is to be erected at Folkstone.

### THE GOUGH.

The equestrian statue of Lord Gough—one of Foley's finest works—is awaiting erection, but owing to a line of action we care not to characterise, the Corporation of Dublin is likely to stand charged with the blame of causing the statue to be erected in London. There has been a most unseemly squabble on the head of the site. The following letter was read at a meeting of the Corporation on Monday, and led to an angry discussion:—

24 Fitzwilliam-square,  
Dublin, 8th August, 1879.

SIR,—It is our painful duty to enclose you a copy of a resolution this day passed by the committee for erecting a memorial to the late Lord Gough, and we request you to kindly communicate same to the secretary of No 1 Committee of your Corporation.

HENRY W. C. WARD, } Hon. Secs.  
SAMUEL F. ADAIR, }

Resolved—That the secretaries inform the Corporation that in deference to the wishes of Lord Gough and his family, and consequent on the action taken by the Corporation in withdrawing the site adjacent to Westmoreland-street and Carlisle Bridge, granted by them in 1878 for erecting thereon the equestrian statue to the memory of the late Viscount Gough, the memorial committee regret very much that they are prevented placing so fine a work of art within the city of Dublin.

Alderman Harris, in a letter to a daily contemporary, defends the action of the Corporation at some length, and sums up the case as follows:—



I now positively state that up to this moment the Corporation have not declined to grant a suitable site for the Gough Memorial. That it is my belief that three-fourths of its members would grant a site, if available, at Carlisle Bridge when the bridge and its approaches are finished, or any other suitable, at their disposal, in the city of Dublin. That those members of the Corporation who took much trouble and warm interest to have the matter brought to a satisfactory conclusion have cause to complain of the autocratic, high-handed, and impracticable manner in which the committee have acted, and it alone is responsible for depriving the city of Dublin of this *chef d'œuvre* of the distinguished Irish sculptor to the memory of a great and illustrious general, the late Field Marshal Viscount Gough.

We sincerely hope that the statue will not be lost to Dublin, and that a suitable site will be found and agreed upon.

### THE SANITARY ACT IN ATHY.

At a recent meeting of the guardians a discussion arose as to the presence of the doctor at all the meetings of the board. It would appear from the report in *Leinster Express*, that on the previous board day that official was in attendance, took part in the business, and made use of language unbecoming on the part of a gentleman. The report then proceeds:—

Mr. Whelan.—There is a resolution on the books to the effect that the doctor is to be present at the board meetings.

Chairman.—The meaning of that was, that he was to attend as consulting sanitary officer during the transaction of sanitary business, and we altered the time for considering the relief lists so as not to give the doctor any unnecessary delay whenever we might require to consult him on any admissions into hospital, as there were many cases which would come before us which we would know nothing at all about.

Mr. Young.—That is perfectly correct; but that he could walk in here whenever he liked, take part in the discussions, call guardians to order, and make use of the most unbecoming language to guardians, is quite another thing. That any officer of this board should call a guardian a "creature," and describe his remarks as "fiddle-faddle nonsense," I think is not to be tolerated.

Chairman.—I consider the language most improper.

Mr. Young.—I would like to know when are we to have the doctor's assistance? He is not here to-day.

Mr. Leahy.—You leave it open to him to say that when he does come here he is ordered out.

Mr. Young.—Oh, he was not ordered out. He remained here and took part in the discussion.

Chairman.—The doctor is supposed to be here as consulting sanitary officer; as far as that is concerned we are paying for services we never get.

Mr. O'Beirne.—Could we abolish the office altogether?

Mr. Young.—You could not; the Local Government Board would not sanction that.

Chairman.—We could reduce the salary to the testamentary shilling.

Mr. Young.—What is the doctor's real office? Clerk.—He is Consulting Sanitary Officer.

Mr. Dunne.—And he is never consulted on anything!

Mr. Leahy.—I wish the entire Sanitary Act was abolished.

Mr. Young.—It is a most absurd act. The subject then dropped.

### RAILWAY ITEMS.

DUBLIN AND WICKLOW.—The directors report that the earnings of their line for past half-year are less by £9,095 than for corresponding six months of 1878. The capital expenditure during the six months amounted to £23,827 5s. 9d.; of this £7,000 has been incurred in doubling the line between Kingstown and Ballybrack, £1,200 in new buildings at Bray, and £4,800 in new station at Westland-row; £2,000 has been paid for purchase of land. Six new horse-boxes have been added to the rolling stock, at a cost of £1,100. The discount on the issue of the New Four per Cent. Stock has amounted to £3,370. New capital was raised during the half-year to the amount of £63,930 by the issue of

Four per Cent. Preference Stock, at the price of £95 per every £100.

DERRY CENTRAL.—The directors report that they have entered into a contract for the erection of stations with Messrs. Dixon and Co., Belfast, to be completed in November. The county guaranteed shares have all been issued except £4,760 and at par. The remainder of the shares upon which the Mercers' and Ironmongers' Companies, of London, have guaranteed 5 per cent., amounting to £14,750, are now to be issued. The directors have received from the Irish Board of Works £50,000 on account of the loan of £90,000, and believe that the remaining £40,000, with the balance of unissued guaranteed shares, will complete the works. With the exception of about £800 all the land required for working the line has been paid for. The whole line, except about two miles, has been brought to formation level. Thirty-seven bridges have been built, but the chief one in progress is that over the River Bann, of which the masonry is nearly completed, and the iron work in progress of erection. The contractor has three locomotives working upon the line, and the engineer, Mr. Barton, of Dundalk, expects in a few months to have the line ready for opening.

### BUCHAN'S SELF-ACTING INDUCED-CURRENT FIXED VENTILATORS.

Mr. Buchan is certainly fertile in plans and prolific in inventions, so far, at least, as sanitary appliances are concerned. He is never done with devising methods to get rid of foul smells, and inducing fresh currents of air to take the place of the freely or forcibly ejected ones. If he has not succeeded in all his inventions in respect to water-closet apparatus and special and general ventilation, he deserved to succeed in respect to several of them, from the industry and persistency he has evidenced in prosecuting his experiments. He is evidently keeping pace with the sanitary science of his time, if he is not in advance of it in some things; and the majority of his appliances are worthy of attention and adoption.

We illustrate to-day one of the latest of Mr. Buchan's inventions—his Patent Self-Acting Induced-Current Fixed Ventilators. They are designed and intended to produce a rapid up-current, and in action they tend to it, and, having no mechanical action, their liability to down-draught is less than any fixed ventilators hitherto introduced. As

their name implies, they act upon the principle of the induced current. The wind, or horizontal air current, in rushing through between the outside perpendicular plates and the body of the ventilator, draws out with it the air within, thus causing an up-current in the pipe or ventilating shaft, upon which the ventilator is fixed. They work with the slightest amount of air, and, from a series of experiments, have shown most favourable results compared with other ventilators. The inside diameter of the up-cast shaft or pipe may be from about one-third to one-half the diameter of the

body of the ventilator, just as ordered or desired. For instance, a 24-in. ventilator may have its up-cast pipe any size from 8-in. or 9-in. to 12-in. in diameter. This variation supplies a public need, as it allows room for a cheaper or more expensive article to be selected, as best suits the circumstances in

each case. The greater up-current of course will be found to exist in the ventilator with the larger body, in proportion to the ventilating pipe. It will be seen from examination that the smaller sized ventilators—say from 6-in. diameter to 12-in. or 15-in.—may be made, as in Fig. 1, to slip down upon the ventilating pipe, as for the iron ventilating ones of soil-pipes, drains, rooms, or small offices. The larger sized ventilators are better if made in the style shown in Fig. 3 (a rough vertical section), so as to sit upon the square wooden base prepared to receive it, as shown in Fig. 4, where G is the ridge, F the wooden base or seat, and E the ventilating pipe.

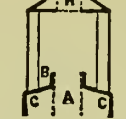


Fig. 2. Vertical Section of Ventilator.



Fig. 4. Vertical Section, showing Wood Frame at Ridge.

The drawing No. 2 is a perspective view of an ornamental fixed ventilator in its place. In fixing, it is necessary to see that the

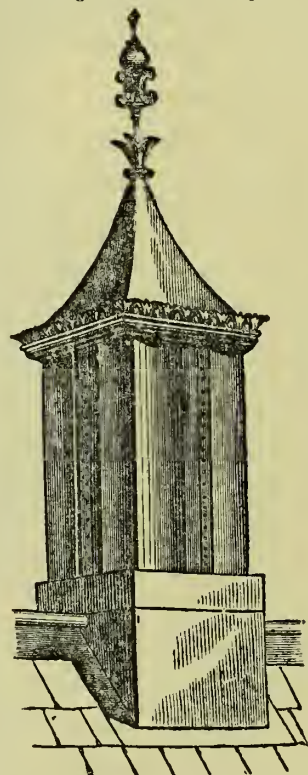


Fig. 2. Induced-Current Fixed Ventilator.

junction of the ventilator and the up-cast pipe is air-tight. The ventilators, of course, may be made to suit various styles of architecture. As to cost, we need not enter on that here, save to say that fixed ventilators for waste and soil pipes, &c., can be had from 20s. upwards. It will be seen from the figures and what we have stated above that Mr. Buchan's outlet ventilators are very useful appliances, and we do not hesitate to say will be found serviceable in various situations.

### ARCHITECTURAL.

AN old man—one of those who, in the golden days (when a spade meant a spade, and a *croneybane*, issued by the "Associated Irish Mine Company" and payable at Cronebane Lodge or in Dublin, was value for a halfpenny), thought seriously on business—liked to see proper drainage provided for houses before foundations were thought of; brick walls at least one and a-half in thickness; and partitions not dangerous to lean against; when machine-made architraves were unknown, and mitres kept their mouths shut; when neither hardware merchants nor house-letters gave certificates for sanitary excellence, but were content to dispense their penn'orth of nails over the counter, or take their three tenpennies and write the particulars in a book, probably bearing in mind—"Ne sutor ultra crepidam" (Ah, why will the shoemaker be beyond his shoe?), and never thought he would see quay walls made like dirt pies of a rotten compound called concrete! He mused on the changes of life, and thought could such a thing as a jingle (the vehicle of his youth) be had even in Ringsend. He knew there was one there in 1850; it was useful as a dormitory for domestic fowl! From the jingle his mind turned on other subjects—the omnibuses that Classon en-



deavoured to establish; the steam coach of Sir James Anderson, that stuck in the Bog of Allen, and subsequently did duty as a corn mill in Townsend-street; the coach of Mason, with its first, second, and third class compartments, plying to Dundrum,—and a change came o'er the spirit of his dream, and he saw a cabriolet with a tiger in top boots perched up on one side of the hood, and Doctor Guinness's hansom cab, Wilson's "Favorites," and William Leadbetter Barrington's trams; and the old man dosed in his chair. He was awakened by an unaccustomed noise, and, looking out of his window in the golden light of a July sunset, his son appeared—the offspring of his early affections, the fortunate fulfilment of his later hopes—borne by in a patent semi-elliptical steel and gunmetal *Trocaderum, Voiture de Rivage du Nord*, with horses *à la tandem*; and still he mused. "Mary," said he, calling to his daughter, "what's that?" "Father," said she, "it's Mick. Oh, dear father, isn't he dashing?" "Ah," said the old man, "but what comes after 'dashing'?" And Mary could but sigh as she technically and like a builder's daughter replied, "*Whitewashing*!" Z.

## CORRESPONDENCE.

ST. JOHN'S ORATORY,  
KILMACDUAGH.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Permit me to say a word in reference to Mr. Deane's report regarding the work of restoration just effected at Kilmaedugh. Mr. Deane considers that St. John's Oratory at Kilmaedugh, is "interesting"; at least in a qualified sense. He adds that—"all that is possible has been done to sustain its tottering walls." Perhaps Mr. Deane considers this a clear way of intimating that absolutely nothing has been done for its preservation. As a matter of fact "its tottering walls" are left to totter or sustain themselves as best they may.—Yours, &c.,

JEROME A. FAHEY, P.P.

Peter's Well, Loughrea.

A CURIOSITY IN PROFESSIONAL  
LITERATURE.

TO THE EDITOR OF THE IRISH BUILDER.

"Ne sutor ultra crepidam."

—HORACE.

"But John P.

Robinson he

Ses they didn't know everthin' down in Judee."

—J. R. LOWELL.

SIR,—Will you permit me space for a word or two as to a pitiable evidence of incapacity that has lately come under my notice? I find it is the fashion to laud a certain kindred society at the expense of us poor architects; but what would be said of an architect who would unblushingly permit a printed paper to leave his office purporting to be a specification, but which would merely, after a description of site and locality, refer to the building it was supposed to represent, in the absence of drawings or plans as a house of such or such a class. And yet such has been done—such a document has actually been issued, and from an establishment which, though not a Government office, is of nearly equal public importance.

Although, for obvious reasons, I will not attempt to give a copy here of the paper nor name of the composer, still for the benefit of the profession I trust you will allow me to state somewhat of a parallel case. I have heard it said, as an excuse for the offender, that the work was peculiar, and he could have had no practice at it. This I have no doubt was, or is so, but were there no persons whom he could consult, for either love or money? He is a man comparatively rich, and one would think it would have been better to fee a professional adviser than display such ignorance. Well, as I before said, the building is to be of such a class; size and material are left to the imagination. Of course, it is evident that much metal will enter into the structure, but there is no mention of the description, so that one party may suppose

parts to be made of steel, parts of brass, &c., whilst another may decide in his own mind to make all of copper, and estimate accordingly; and a third will say to himself, "I will go in for cast iron!" When the tender is accepted and work completed, with no end of extras, who is to judge as to what was meant? The builder will say, "You specified a first-class house, you said nothing as to size." "No," says Mister C.E.; "because I calculated on the usual size of first-class houses." "Well," says Mister Contractor, "I have built it the usual size." "There is no ventilation, no chimney flues; the grates are made to burn coals, I wanted gas stoves." "Why didn't you say so?" replies contractor.

But you, Mr. Editor, nor your readers, can hardly be expected to receive this as fact, yet I can assure you it is not so absurd as the reality for which intending contractors were obliged to deposit a sum of money for fear they would not return the precious verbiage, although I should not call it so, it was not verbose, but, on the contrary, most painfully brief. The superabundance of words, if any, was on the wrong side.

Well, sir, I, for one architect, am grateful that we are not as other professionals are, at the same time that I would warn my younger brethren that they cannot be too careful as to their specifications, for, believe me, they need not depend on an University education when the schoolmaster is abroad.

THOMAS LEARY, C.E.,  
Architect and Slater.

Lazer's Hill, 12th August, 1879.

FALL OF HOUSES IN SACKVILLE-  
STREET—ESCAPE OF A REGIMENT  
IN 1814.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—My cousin John in your last number writing from the Royal College of Science, St. Stephen's-green, on the rise and fall of Jerry, gives an excellent advice as to how such speculators should be dealt with. This calls to my mind a subject that I would like to hear somewhat of from your justly esteemed contributor of "*Adversaria Hibernica*," viz.:—About fifty years ago in my father's workshops I frequently heard discussed the reason for the falling of houses in Sackville-street on the site of the new Post Office. As well as I can remember the subject, the square plot on which the Post Office stands was occupied somewhere about 1813 by four large houses, run up in extraordinary haste, and ready for occupation early in 1814. The peace being proclaimed, there was a sudden influx of military to Dublin, and the authorities, in lieu of better barrack accommodation, placed a regiment in the newly-finished dwellings, which, unable to bear the weight, fell, the soldiers narrowly escaping with their lives. My very imperfect recollection of the matter leads me to imagine that blame was attached to the use of the newly-introduced American or Canadian deals in joists and floors, and general slightness of the work. The ruins were rapidly cleared away to make room for the laying of the foundation stone of the new Post Office (at which grand ceremony my mother's watch was stolen), and as the whole neighbourhood was in a shocking mess with erecting new buildings and getting rid of old, the falling of the houses and narrow escape of the 101st regiment passed away from the memory of the citizens. I should like to hear something more about it.—Yours, &c.,

FILLISTER PLANE.  
Royal Dublin Society,  
Duke's Lawn.

P.S.—Are there any remains of Beresford's riding house standing?

THE ROYAL ARCHÆOLOGICAL  
INSTITUTE AT TAUNTON.

THE congress of this institute commenced on the 5th inst. under the presidency of the Bishop of Bath and Wells. The members were received in the Shire Hall by the Mayor at one o'clock, and an address of welcome

was read by the Town Clerk, and a similar address was read by the Rev. Canon Meade on behalf of the Somersetshire Archæological Association. Both of these addresses were briefly replied to by Lord Talbot de Malahide. The Bishop of Bath and Wells then proceeded to deliver his inaugural address, which was a very interesting and instructive one. Later in the day the members and friends of the Institute dined with the Mayor and Corporation. Subsequently a perambulation of the town was made, and the castle, remains of the priory and St. Mary Magdalene, and James's churches visited. In the evening at half-past eight, the Antiquarian Section opened in Taunton Castle-Hall, when Dr. Pring read the first part of his paper on "Some Evidences of the Occupation of the Ancient Site of Taunton by the Britons and the Romans." The Architectural Section was then opened, and Sir Charles Anderson read a short paper "On Towers." A number of visits were made on the following days to places in the vicinity, and several interesting papers were read. The congress closed on the 12th inst.

## ON A LATE JOYOUS OCCASION.

"Il coûte peu à amasser beaucoup de richesses, et beaucoup à en amasser peu."—ROCHEFOUCAULT.

"Fly to the desert, fly with me."

—MOORE.

Oh, hadn't we the spree

Beyant there in Glencree,

Where we went on the Sozanc'y invitation, O,

With the Corporation nob

And no end of Dublin snobs,

To witness the effects of reformation, O!

Some went round by Saint Ann's

On cyars and shandry dans,

Where erst was the Quoit Club raised by Lombard, O,

To be sure they all got down

And walked the hill at Friarstown,

Just to ease the poor beasts they so encumbered, O;

Whilst others chose the route,

With many a jovial shout—

Altho' much too early for singing, O—

Where they caught sight of the sea,

And the air of Killakee

Rich complexions to their countenances bringing, O.

On the Military Road

We formed a dashing crowd,

All agog for the eating and the drinking, O;

For from that you may be sure

No one went behind the door.

But did their duty honestly like winking, O.

Amongst the foremost there

Was our own benign Lord Mayor,

Supported by his Grace and Johnny Carroll, O,

And Joe Manuing, ever true

Where there's entertainment due

With Beveridge, be it in the stoup or barrel, O.

There was a choice menu—

Gigot and Irish stew,

With Poulet a cressons, and new potatoes, O,

And lots of bread and cheese

(But we missed dear Willy Rees,

To piano-forte a chorus and elate us), O.

For sure we rarely get

Such a *déjeuner fourchette*;

But Billy never feeds with a contractor, O.

But did not some little bird

Sing of a *Pie de Perigord*?

Perhaps the jealous spite of a detractor, O.

We know Sir Arthur Rose

May be generous if he chose.—

We'll let that stand there for the present, O.

Too much of Norfolk turkey

Might make our senses murky,

And for our parts we much prefer a pheasant, O.

Well, after all this cheer,

Speeches, crying of "Hear, hear,"

And the band playing choruses *andante*, O,

There was a grand collection

(Always after a refection

The heart is light as any figurante, O).

Just seventy pounds was given

To this work approved by heaven,

With best wishes for the future of the child, O;

And then we all went home

By the lovely way we'd come,

So oft described and praised in IRISH BUI. DER, O!

Rus in Urbe, 4th August, 1879.

Z.



### ACCIDENTS.

At the Lee Mills, Cork, on Thursday, a man named Connor, a painter by trade, went to visit a friend who was employed at the works, and whilst passing some of the machinery his clothes were caught, and in a few seconds the unfortunate man's body was drawn in and frightfully mutilated. An inquest was held.

A labourer who had been engaged in clearing out a sewer at Dominick-street, met his death on Wednesday by a wall 6 ft. in height falling upon him whilst so engaged.

At Lemonsfield, Co. Limerick, two men engaged in sinking a pump-well on coming upon rock had to resort to gunpowder, and on the ignited fuse touching too quickly the powder heavy pieces of stone were thrown up, one of them striking a man and killing him at once. The other was not fatally injured, and lies in the hospital.

### HOME AND FOREIGN NOTES.

**A LONG SITTING.**—A morning journal of last week informs its readers that "the annual meeting of the British Medical Association was opened yesterday [at Cork], and will be continued until the close of the winter!!"

**ART TREASURES AT GROSVENOR HOUSE.**—The Duke of Westminster has again afforded an opportunity for designers and artisans inspecting Grosvenor House, with its art treasures, during the present and following month.

An Owen Sound "architect and building engineer" announces that he has a practical knowledge of building generally, and will allow a liberal discount on churches, chapels, Sunday-school buildings, &c.!! He might try his fortune over here.

**SCHOOLS FOR DRAWING IN PARIS.**—The national teaching of drawing in Paris has at length been definitely agreed upon. There are to be established 153 schools for boys, 38 for girls, 47 classes for adults, 4 schools for men, and 4 for women. Besides these classes, the city of Paris also proposes to arrange for public lectures on art.

The grand portal of Strashourg Cathedral is at last finished. The two doors of bronze consists of 1,500 pieces, 650 ornamental-headed nails, 300 rosettes, 98 large lozenge-shaped plates, 14 figure scenes, 14 half-lozenges with animals, 181 lozenges with plants, and foliage, and so forth. The subjects are all from sacred history.

**A STEAM SUPPLY IN NEW YORK.**—A Steam-power and Heating Company has been incorporated for the "making of steam to be conveyed in pipes through the streets, squares and lanes, to heat all buildings, public and private, for cooking and for heating of water in houses, and for a motive power in all cases where steam can be properly used; also for clearing the streets of snow and ice, and to be used in any and every manner where steam can be employed for a useful purpose." What next?

**A NOBLE SCOT.**—Mr. William Hunter, of Blacket-place, Edinburgh, who died a few days ago, has left the whole income arising on the capital of his estates, amounting to about £100,000, to be applied in the payment of annuities of £10 to £30 to natives of Scotland in decayed circumstances, who have been engaged in business in Edinburgh, as merchants, manufacturers, or other tradesmen. The bequest will take effect after the death of certain annuitants and a period of accumulation. Mr. Hunter was a partner in the firm of Hunter and Co., clothiers, Edinburgh.

**THE ELECTRIC LIGHT.**—At the half-yearly meeting of the Cork Gas Consumers' Company, a dividend at the rate of 8 per cent. per annum was declared. The chairman, in referring to the electric light, which was recently exhibited in that city, said the light which was shown by the Gas Company in their improved burners compared very favourably with the electric light; and, if expense was no object, they could produce light of any illuminating power that might be desired. Until the advocates of the electric light discovered the means of storing the light in advance he did not think the shareholders had anything to fear at present.

**THE LARGEST TREE IN THE WORLD.**—There is at present on exhibition in New York a section of an immense tree which has been brought from California. The *New York Herald* says:—"This wonderful specimen of nature's handiwork was

discovered in 1874. It was growing in a grove near Tule River, Tulare County, California, about 75 miles from Visali. Its top had been broken off, probably at some remote period, and when discovered it was still 240 ft. high. The body of the tree where it was broken was 12 ft. in diameter, and had two limbs measuring respectively, 9 ft. and 10 ft. in diameter. The trunk measured below 111 ft. This ancient monarch of the forest is called 'Old Moses,' after a mountain near which it stood. It is supposed to be 4,840 years old, and it is the largest tree that has ever been discovered. The section on exhibition is 75 ft. in circumference, and 25 ft. across. It is capable of holding 150 people in its interior. The interior, as now fitted up, is arranged like a drawing-room. A carpet has been laid down; there is a piano, sofa, tables and chairs, with scenes from California hung around, and people move about quite freely."

**CLEANLINESS ALL THE WEEK, DIRT ON SUNDAYS.**—"The Belfast Town Council," writes a correspondent of the *Newry Telegraph*, "have decided to close their new baths and wash-houses on Sundays. These baths being exclusively meant for the use of the working classes, it was at first intended that they should be allowed to remain open for some time on Sunday mornings. But the inevitable deputation of clergymen waited upon the council and induced them to rescind their decision. The Mayor sensibly remarked that 'a man will worship God none the worse of being clean,' and certainly it does seem 'straining at a gnat' that these reverend gentlemen, none of whom, I should think, would object to take a bath in his own house on Sunday morning, will refuse their poorer brethren the privilege of enjoying that which is so conducive to health, and which they may not have the opportunity of enjoying during the week. It is to be hoped that the council will yet see its way to open the doors of the baths to those who wish to use them for an hour or two on Sunday mornings, as the indulgence in this undoubted luxury would be of great benefit to many, without in the least interfering with any man's observance of the Lord's Day."

### TO CORRESPONDENTS.

**NOTES OF WORKS.**—We desire to inform one or two architects that if their notes were worth sending at all we ought to have received them in the first instance, and not in a second-hand form. Under these circumstances we will in future decline to receive their or similar communications, and the parties concerned may elect to send them where they like "over the water" or under the water, a not inappropriate place for the "puffs" of some professional gentlemen.

**C. E. (Cork).**—We quite agree with you that the medical gentlemen named could be better employed than in acting the "touters" for some manufacturing firms. Public Health is one thing, but its advocacy ought to be kept apart from the interests of "shop, shop, shop!"

**VINDEX.**—There is no vindication needed. The intelligent portion of the public at least have thoroughly understood the aims and objects of the parties.

**"AULD REEKIE" (Edinburgh).**—Thanks for your promise.

**RECEIVED.**—A. R. C.—A Plumber (under consideration)—"Artisans' Dwellings, Dublin" (ditto)—Northern Architect J. R. L.—"The Irish Institute"—M. D.—Carlisle Bridge—R. E.—S. P., &c.

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### NOTICE.

It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.

Correspondents should send their names and addresses, not necessarily for publication.

We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.

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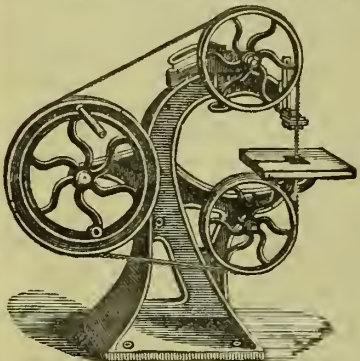
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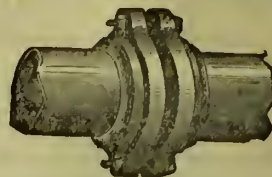
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THE IRISH BUILDER.

VOL. XXI.—No. 473.

THE PRESERVATION OF NATIONAL MONUMENTS.

FOURTH PAPER (conclusion).

**T**HE works of conservation in respect to several of our ecclesiastical ruins are not likely in all cases to give satisfaction, either in regard to the extent of the reparations or the manner in which the Superintendent may carry out the work. Dissatisfaction in some instances on the part of archæologists and antiquaries, and even architects, need cause no wonder, for it is in the very nature of things, and particularly in respect to works of architectural restoration, that differences of opinion will exist. Of course the Government cannot be expected to carry out works of reconstruction or radical restoration on any large scale. Funds to a limited extent are made available for preserving a stated number of National Monuments, and doing some repairs that will further prevent them, or at least prevent them for a time from tumbling into complete ruin. In a few special instances the historic importance of a pile of buildings and the beauty of the architectural features may demand a departure from the ordinary course, and warrant, with the concurrence of national opinion, a greater outlay for works of preservation. The works of conservation carried out in several instances by Mr. Deane under the Irish Board of Works have been very scant, but it must be granted that the Superintendent is in a manner tied down to conditions, although still at liberty to use his discretion as regards the nature of the workmanship. The Superintendent is an architect of some experience, but we are not certain that he has himself claimed, or his friends for him, any extensive knowledge of ancient Irish architecture. He certainly was

not a distinguished archæologist when he was appointed to his present office; but, as experience teaches, doubtless he will improve his knowledge while he continues in his present position.

Up till the present time we are not aware that any native architect or archæologist of repute has been consulted outside the office of the Irish Board of Works, in relation to any works of conservation carried out by Mr. Deane. That there was need for such a consultation at times, we dare avow; and that there will be need for such in some cases in future, we are equally certain. Works, no matter what may be their nature, when carried out by the Government or a department thereof, on which public funds are expended, call for open, but, at the same time, judicious criticism. A cathedral is “restored” or partly rebuilt by a fund subscribed by a princely donor or a number of subscribers. The fund is a local one to a great extent, and raised mostly by those in the locality or county in which the cathedral or other church may be situated; but the preservation of a number of National Monuments is a national undertaking. In both cases, however, the right of criticism exists as a public duty, and, on art and archæological grounds, works paid for by public moneys need above all others to be done well, and the best advice and talent should be available and availed of for the satisfaction of all.

Resuming again our notice of the buildings reported upon, we come to Kilconnell Abbey, in Galway. Of this building Mr. Deane writes:—

“This picturesque abbey consists of nave, chancel, aisle, and south transept, with cloister court and conventual buildings. Two sides of the cloisters are nearly perfect. The projection on the south side I consider to have been the lavatory, the original stone basin being found near it. The cloister arches on eastern side open into a large apartment, being much wider than the other three sides. The detail throughout is excellent of its kind. Several altar tombs, of elaborate character, are quite perfect. Much had to be done to this abbey. Trees which endangered the walls have been removed, the loose masonry secured, the tower carefully pointed, graves levelled, inscribed stones carefully relaid.”

Illustrations are given of the plan of the abbey, elevation from the north, the plan and elevation of column and the detail of piscina. We reproduced the last three in preceding issue with details of other buildings. We hope the Superintendent will think it is no reflection on his work if we again express a wish that local architects and archæologists will send us some further details of the works of conservation under notice. Facts as to the foundation and history of our churches and abbeys are available, but we need information as to what has really been done or is doing, and the manner in which the work has been done. The resources of a journal like ours are not sufficient to warrant us in undertaking the labour of a circular tour over the island, for the supplying of special detailed descriptions and furnishing illustrations, giving views of buildings before and after their restoration. Occasionally we may make visits to certain districts, but in the meantime local archæologists and efficient sketchers may render a service to archæology and architecture by supplying the information desiderated.

Concerning the buildings in Iniscaltra, or Holy Island on Lough Derg, Mr. Deane writes:—

“Here are a number of ruins and round tower. The principal church dedicated to St. Caiman. It

is probable that alterations were made by Brian Boroinhe in the tenth century. Each church, and two of the oratories, have been surrounded by strong walls or cashel, with arched entrances. The arches have fallen, but the arch stones are nearly all upon the spot. St. Caiman's Church, the most perfect and interesting of the group, required much repair. It consists of nave, chancel, and beautiful Romanesque chancel arch with moulded piers. The base of the altar remains. This is of more elaborate design than is usual in such churches. The front slab, which is finely carved, was removed to a chapel some miles distant, and now disused. This stone will be replaced. To the east of St. Caiman's Church is a small building commonly called the Confessional. It is quite possible that it was used for this purpose. Its whole length is not more than 10 ft., by 6 ft. wide, and built of massive stones. At the western end is a stone seat, the entrance being from the east. St. Mary's Church, the largest on the island, with little architectural detail. Within the church is a fine monument to Sir Robert O'Brien and his wife, daughter of Walter Earl of Ormond, A.D. 1625. To the north of St. Mary's are the remains of an oratory surrounded by an ancient wall. Both have been built within the circuit of very ancient earthworks, which appear in several places on the island. The works on Holy Island are now in progress.”

Much interesting historical particulars might be given of Holy Island and its buildings, and the pilgrimages of more modern times to the celebrated lough, but we will not occupy space with the details. We hope, however, that the ecclesiastical ruins on Holy Island, where not too much dilapidated, will be carefully preserved by judicious reparations. The pages of Petrie and Brash can be usefully consulted for some further details respecting the workmanship and architectural features of the ruins on Iniscaltra Island.

Of Hoar Abbey, County Tipperary, originally founded for the Benedictines, but subsequently in the possession of the Cistercians, Mr. Deane reports:—

“This fine ruin has been carefully repaired, the same character of works being carried out as heretofore described to other structures. The nave is 60 ft. long by 23 ft. wide. The eastern end is lighted by fine lancet windows, curtailed in the fourteenth century, and tracery inserted. The tower is in excellent preservation. The remains of painting are to be observed on walls of chancel. The carefully cut mason's marks on the arch stones of tower are well worthy of observation. The cloister court has been traced by its foundations. The interior has been levelled, and much interesting detail uncovered; walls have been built to prevent the trespass of cattle.”

If the “masons' marks” spoken of are worthy of observation, we would like to see them at some time or other reproduced in connection with other native masons' marks. If a series were illustrated, we might be able to see were they similar in form and execution to those found in England. If we remember aright, Mr. George Godwin, on two occasions in the *Builder* in past years, illustrated a number of “masons' marks,” and several of them were very characteristic. Whether masons' marks in Ireland are sometimes confounded with Ogham or other character, or *vice versa*, we will not say, but we have a grave suspicion that mistakes occur often, and speculations, far-fetched, are sometimes indulged in.

The works commenced at Timoleague, County Cork, and referred to in last year's report, are now stated to be completed. Passing over early historical particulars, this abbey appears to have been repaired as late as 1614. “The general features of this fine abbey,” observes Mr. Deane, “are as indicated on plan. The insertion of the tower of De Courey's time marks the usual epoch of the change of character of the services of the church. The simple church of the thirteenth century in which monks and people assembled, was



enlarged and separated from the new nave and transept by the inserted tower. In the latter portions the people assembled, whilst the older choir was used more as a private chapel for the occupants of the monastery. The cloister court was full of ruined portions of the arcades. Some of these have been put together, and restored to their original position. The ancient entrance to the abbey court has been re-opened, and the general surface of the interior levelled as far as was possible. Owing to strong feeling on the part of the peasantry, I regret to say less has been done in this abbey towards making the interior decent, as far as burials are concerned, than in other places."

The peasantry, it would appear, seem to think they have a prescriptive right in respect of burying their families wherever they like, within and without the interior of many of our ruined churches and abbeys. The ornamental work of many of our fine ecclesiastical buildings have been pulled down and used as headstones, and the peasantry, pure and simple, have not always been the spoliators. Tons of stone have been carted away many miles for re-building domestic edifices and outhouses, and clergymen of both churches have not been rarely the sinners. Portions of the walls of new churches and chapels in the present century have been built with the stolen masonry of our ancient buildings. We have ourselves known on both sides of the channel Vandalism of this kind, and old tombstones or headstones stolen away from graveyards, and smashed by the dozen for rough walling purposes.

The works are finished at Screen Church, County Meath—so we are told,—and we must imagine their nature, for all we are told of Screen is what follows:—

"The tower is the main feature in this ruin. It is of great height, and rather peculiar, being at western end, commanding a fine view of the surrounding country. The windows of church were filled with perpendicular tracery, many portions of which have been found. Several curious sculptured stones of monumental character have been uncovered. The works are now completed."

Well, the above is not a very satisfactory architectural or even ordinary description from the pen of an Architect and Superintendent of National Monuments. A tower "of great height and rather peculiar." Pray what is its height, and in what constitutes its architectural peculiarity? The tower, being standing, and over-topping the rest of the ruin, must be "the main feature in this ruin." The description *re* Screen Church is very meagre indeed. Of the ruined oratory at Killiney, County Dublin, and of the ruins on Dalkey Island, and at St. Mary's, Delgany, we have these few words:—

"This oratory, considered by Dr. Petrie to be of extreme antiquity, has few features of note which have not counterparts in the churches at Glendalough. The works undertaken here, as well as at almost a similar building on Dalkey Island, and at St. Mary's, Delgany, have only been of such a nature as to prevent further ruin taking place."

We now come to the last group of buildings reported upon by the Superintendent in his present report—those at the far-famed Clonmacnoise. Mr. Deane has but few words to say respecting this remarkable group of buildings, and we think he wisely surrenders the task of description by referring the reader to other sources, as follows:—

"The ruins here are so well known and so faithfully described in Petrie and other books on archæology, that it is needless to enter into a full description of each. The names of the buildings

within Cashel and outside it are as follows:—1. O'Rourke's Tower. 2. Temple Ciaran. 3. Temple Doolum. 4. Temple Connor. 5. Temple Finghan. 6. Temple Dermot, or Cathedral. 7. Temple Righ, or Melaghlán's Church. There are traces of other structures. The Nun's Church and two crosses of wonderful beauty. The works at present undertaken are the repair of the tower and the securing of the gable of Melaghlán's Church, which was in a most dangerous condition. I trust that careful examination of the Cathedral, at which work has not yet been commenced, will bring to light many interesting features."

We trust so too, and we also sincerely trust that whatever works of restoration or conservation are undertaken at Clonmacnoise, will be well considered and executed with painstaking care. The pages of Brash, as well as Petrie, may be consulted with satisfaction and profit by architects and archæological students, for in respect to Clonmacnoise much will be found there recorded of a deeply interesting kind. The illustrations of some architectural details of the buildings at Clonmacnoise in Brash's "Ecclesiastical Architecture of Ireland" will afford a good idea of the character of the work. Petrie's work is of course a valuable one in many respects, for he was a good artist as well as an antiquary; but Brash, in addition to being a respectable antiquary was a professional architect, and could write well and sketch well—a man of pen and pencil, and one well versed in the annals and architectural history of his country.

In bringing to a conclusion our papers—suggested partly by the annual report of the Board of Works, containing that of the Superintendent of those National Monuments under the care of the Board—we have little to add to what we have already expressed. If works of "restoration" are undertaken we desire to be acquainted with their nature and extent; but if works of mere protection or preservation are carried out there exists less reason to feel apprehensive of danger, save on the score of absolute neglect or inefficient or bungling reparations. Unfortunately some of our more dilapidated monuments throughout the country are among the most historical of our ecclesiastical remains through their remarkable associations with great names and events. On the other hand, some of our least important buildings, considered from a strictly architectural or historical point, are in the best state of preservation. It would not be wise to expend much time, expense, and labour on a mere shapeless mass of stones, whatever might be the surroundings of its early history. The buildings, however, which the genius and piety of our forefathers reared, and which even still in partial ruin shine out as examples of an architecture worthy of imitation, it is these that we hoped to see preserved as long as is possible, and the best knowledge and ability enlisted in their conservation, that the work may be creditable to us as a people now, and reflect an honour on the country and all concerned hereafter.

#### ANENT IRISH HISTORY, ARCHÆOLOGY, AND ARCHITECTURE.\*

We are glad to see published in pamphlet form the admirable and scholarly lecture delivered before the members of the newly-formed Meath Antiquarian Society by Sir Samuel Ferguson, the Vice-President of the Royal Irish Academy, and Deputy-Keeper of

\* Inaugural Lecture of the Meath Antiquarian Society. Delivered by Sir Samuel Ferguson, Q.C., LL.D., &c., at the County Court House, Trim, June, 25th, 1879. Trim: Joseph Moore.

the Records. The architectural remains of Ireland, and the language and ancient literature of the country are in part dealt with in this essay; and although much of the ground travelled over is very debatable, the subject is invested with considerable interest, and must command the attention of students of Irish history and others.

Meath, as Sir Samuel truly observes, in the existence of her rude stone monuments, apart from her later ecclesiastical remains, presents "subjects of inquiry as fresh and as full of unsolved mystery," as she did when Governor Pownall directed attention to the Carn of Newgrange, nearly a century ago, in the "Transactions" of the Royal Irish Academy. Of this carn it is remarked—

"Looking at the finely-carved spirals which decorate the lintel of the entrance passage to Newgrange, and at the art with which the central chamber is constructed, one is led to the observation that in this country the art of the stonemason was earlier employed in the construction of dwellings for the dead than for the living. An uncemented stone building above ground could not afford so secure a shelter from the weather as a well-planked or even a well-watled and plastered house of wood; and the fact, these dry stone erections commonly called Cyclopean, which exist among us appear almost universally to have served the purpose of enclosures around dwellings rather than actual dwelling places. When that dry stone work gave place to cemented building is a question still unsolved; but, generally speaking, our ecclesiastical remains are of cemented masonry."

Sir Samuel thinks that we must not too hastily assume that the builders of those uncemented quadrilateral cells called *dochans* were necessarily ignorant of the principle of the arch. The method adopted in the construction of these structures, can be seen in examining them. Courses of masonry from either side were advanced until a final course covered the narrow opening at the top—an expedient still in use in other forms of building. A recent instance is cited by the lecturer:—

"It is not long since I saw in the south of Ireland an example of the continuing use, even in our own time, of the simpler method. One of the arches of a county bridge had been carried away by a flood, and the span being a small one, had been re-constructed by projecting courses, which carried the road just as well as if it had been built with *voussoirs* and key stones. The Egyptians are commonly thought to have been ignorant of the use of the arch; but a brick-arched sepulchral vault has been found at the base of one of the Pyramids, situated, with respect to it, much as the chamber at Dowth is, with respect to its mound or *quasi* pyramid."

Further on it is observed:—

"When, therefore, it comes to be a question of the comparative age of, say, one of our Irish Round Towers, with a lintelled doorway, such as Lusk or Swords, and another with a more or less perfectly arched doorway, such as Kells or Donaghmore, or (as compared with these) of Dulane Church, with its doorway shown, flat lintel and sloped jambs, we shall deceive ourselves if we think that in those features alone we have material for forming a definite opinion. Nor will the shape of the arch itself in all be a sure guide to determining its place in the order of dates. Ogival canopies, coeval with the rest of the building, recalling the fashions of the thirteenth century, line the chancel-vestries of the early mediæval Cathedral of Ferrara. The vault of the passage in the Cyclopean wall of Tyrians, as the *Gorslodo San Giovanni*, a twin sewer to the *Clara Maxima* at Rome, are of distinctly Gothic contour. We need not, therefore, experience surprise, when we observe the Roman vault of, say, Cormac's Chapel at Cashel, or St. Flannan's Oratory at Killaloe, forming the floor to a pointed-arched upper-croft, or entertain the conjecture that one part is not as old as the other, because where one has been formed on a centering, with *voussoirs* and key-stones, the other, as at Killaloe, is constructed by projecting courses of the roof masonry."

The above remarks are suggestive, as also are others that immediately follow anent our Round Towers and early churches, but we



prefer not to enter into any discussion at present in respect to our Round Towers, particularly as to their origin, as we not long since treated the subject at great length. A short extract, however, will not be amiss in connection with the Round Tower question:—

"It may be, however, that, as between Round Towers and churches there exists a different presumption as to precedence of the arch. There are grounds not unsustained for surmising their origin from different sources. The early Irish stone church has no prototype in Christian architecture on the Continent; while, as regards the towers, it is their roundness alone that distinguishes them from the detached campanile towers which stand beside the churches of the extensive districts in North Italy; and it is the ecclesiastical use to which these latter are put that distinguishes them, in turn from the slender domestic towers of Bologna, Pavia, and Genoa, and from older Castella—the parents probably of them all—which still mark the lines of the great Roman highways leading out of North Italy towards these islands. The great characteristic feature in all is the detached site of the tower, and the elevated position of the doorway."

Sir Samnel goes on to cite some foregone instances and draw comparisons, and what he advances by way of argument is certainly instructive. Here is another extract in reference to our Round Towers:—

"Drawings still exist which show that the peculiar ecclesiastical Round Tower of the fourth and succeeding centuries was not confined to Ravenna or Selanese. Miss Stokes, in her edition of Lord Dunraven's magnificent work on Irish Church Architecture, has given some such intimation from frescoes from Rome, and I may add in the Library at Rhina, there is preserved an old bird's-eye view of Naples, in which the tower of the Cathedral of San Lorenzo appears a perfect counterpart of the Ravennese examples. If on these considerations we should conclude that the ecclesiastical Round Towers in this country have probably been formed on the Roman models, the argument for the higher antiquity of the more finished and better built examples would appear at least as probable as the contrary theory, which rests on the supposed development of rude native elements of construction."

We are not believers in the ecclesiastical origin of our Round Towers, though we are open to conviction. We have read and studied the question for several years, and sufficient evidence is not as yet forthcoming to warrant us to subscribe to the ecclesiastical theory. Nevertheless, we study with interest anything new that can be said on the subject, come from whom it may inside, the island or outside of it. The essay under notice is well entitled to consideration, and a respectful one.

In touching upon antique metal and ornamental writing, Sir Samuel Ferguson observes:—

"In antique metal work, as well as in decorative handwriting, we may surmise a similar progress from Greek models; and, singularly enough, it is Mycenæ which has supplied the most remarkable examples of those correspondences in stone and in metal. There is nothing in the Celtic trumpet pattern, as that combination of divergent spirals constituting its characteristic feature has been designated, which we do not find in simpler or more complete development in the objects disinterred at Mycenæ by Schliemann. These are in a taste altogether different from the clumsy and, so to speak, Scythian remains found by him at Troy. We have the same type of ornament here in stone and metal work and in ornamental writing. If we could point to a school of ornamental penmanship on the Continent, from which the writers of the Books of Kells and Durrow could be supposed to have derived instruction, we might say that, as regards our metal work, this affinity with Greek types is accidental, and that the native goldsmith had copied the foreign-taught scribe; but in the absence of any external school of this kind of manuscript illumination, and in presence of the difficulty of supposing the Irish scribes to have originated their peculiar style without independent hint or suggestion, it seems not improbable that our first ecclesiastics found a sufficient development of that kind of spiral and triquetral ornamentation in the works of the

native masons and goldsmiths, to give them the leading lines of their patterns on vellum."

Possibly; but in other matters as well as this we must suppose that invention preceded imitation, and that in art and architecture, and in sundry other fields, Celtic genius could originate as well as imitate. Let us not be always supposing that patterns or copies external to the country were followed. The forms of nature may aid the inventive mind, and the originator of an art, process, or style may be little indebted to others. His patterns and contrivances in several instances may be entirely his own. The mind that can create may also construct, and mental and manual labour are not incompatible.

The concluding part of the essay under notice deals with the literature and language of the country, and the want of a good Irish Dictionary. Sound advice is tendered in parting words to the dwellers in Meath and to the members of her Antiquarian Society, which we hope will bear good fruit in the fields of Irish literature and archaeology.

#### PUBLIC HEALTH AND SANITARY ADMINISTRATION.

THE Irish Local Government Board has issued, during the late month, a new sanitary order to the sanitary authority in every rural district which consists of an entire union. The circular which accompanies the order is as follows:—

Local Government Board, Dublin,  
15th August, 1879.

SIR,—With reference to their circular of the 17th September, 1878, relative to the provisions of the Public Health Act, 1878, the Local Government Board for Ireland now transmit to the sanitary authority copies of the sanitary order which the Local Government Board have issued under that act. The board request that the special attention of the officers employed in the sanitary district may be directed to the provisions of the order, and to the duties imposed on them thereby.

The board desire to point out that under the 11th section of the act every medical officer of a dispensary district is now a medical officer of health, and is entitled to receive such additional salary as the sanitary authority may determine, with the approval of the Local Government Board. The second clause of that section further provides that with regard to salaries, or additional salaries, whereof any portion is to be recouped to any local fund from moneys voted by Parliament, the amount of any new salary, and the addition thereto, shall be approved by the Commissioners of her Majesty's Treasury.

The Local Government Board are advised that the medical officers of health are not included among the officers of the sanitary authorities appointed under the Public Health Act of 1874, and who are referred to in the 280th section of the Public Health Act, 1878, as entitled to continue to hold their several offices and employments on the same terms, and subject to the same conditions as they would have held them if the act of 1878 had not been passed. It will therefore be necessary for the sanitary authority to take the subject of the salaries of the medical officers of health into consideration, and to state the amount of additional salary which they think should be paid to the dispensary medical officer within the sanitary district for the duties imposed on him as medical officer of health by the Public Health Act, 1878, and the order of the Local Government Board thereon. All the other sanitary officers who are employed under the Public Health Act of 1874, continue to hold office in pursuance of the 280th section of the Public Health Act of 1878, above referred to.—By order,

B. BANKS, Secretary.

The order, besides pointing out the powers conferred by the act, deals with the appointment of sanitary officers and tenure of office, and the duties of medical officers of health and other sanitary officers. This new order is sorely exercising some of the union sanitary authorities in the country, and possibly it will lead to no small amount of annoying

and unpleasant friction before the rural sanitary or union authorities agree to obey the order. The guardians have imposed on them the duty of re-appointing sanitary officers under a new name, and revising the salaries of these officials. Indeed several of the guardians in the provincial or rural districts think, nay, are asserting, that they have too many sanitary officials at present, and that the act seems specially designed in the interest of the doctors. Dispensary medical officers in rural districts were, heretofore, *ex-officio* sanitary officers, but now they will have the more high-sounding title of "medical officers of health." If this new order is to work well both the act and the order will have to be interpreted wisely as regards rural districts. We are no half-hearted advocates of sanitary reform, and where work has to be done of an important character—real work, and plenty of it,—we would appoint efficient officers, and pay them fair salaries.

A populous city or town may have too few officers, and a rural district too many, and the number of appointments should be regulated by the extent of the district, the amount of the population, and the possible work to be done. It may be too,—indeed, it is often the case—that private duties and practice are incompatible with public duties, and if it were possible always, we would like to see medical officers of health ceasing from private practice. In cities and large towns this is possible; but in rural districts, where medical officers of health are not debarred from private practice on account of the smallness of their salaries, there is danger that private interest and public duty may be found betimes in violent collision. Apart, however, from medical sanitary officers, there are other sub-sanitary officers in urban and rural districts, of whom it may be said, and has been said, "they cannot afford to be independent," *i.e.*, they cannot act with independence. Indeed we have known some corporators, town commissioners, and guardians to be some of the greatest offenders against the sanitary laws by keeping their house property and premises in a filthy condition. They were not, however, reported upon by their officers for nursing nuisances. The offending representatives of the local boards were the masters, and their sanitary officers their servants, and the latter were too wise to imperil their bread and butter. The question of salaries in rural districts is a sore one, and is particularly so now on account of the depression of agriculture and trade. The union sanitary authorities have certainly the power of revising the salaries of their medical and other officers, and dispensing with services if they are not required. If, however, heretofore an act has created a certain office, the holder of that office is entitled to some compensation for the loss of his appointment. There is a conviction on the mind of the guardians in several union sanitary districts, that the creation of new offices is imposed by the new sanitary order; and, acting on this belief, several of them are going in for a general reduction of the salaries of their medical sanitary officers, by passing resolutions to that effect. We greatly fear that a considerable time must still elapse before sanitary administration can be carried out efficiently in the rural districts, and machinery can be found generally applicable throughout the country.



## PEMBROKE TOWN HALL.

WITH present number we give a view of the new Town Hall now nearly completed for this rapidly-rising township. The design was supplied by Mr. E. H. Carson, architect, Harcourt-street; the contractor being Mr. Patrick Monks, Great Brunswick-street. Cost about £2,500.

## OPENING OF THE NEW BRIDGE OVER THE LIFFEY.

THE new swivel bridge over the river near the Custom House was opened for traffic on the 26th ult. We have already given particulars of its construction. All the iron-work was supplied by the Skerne Ironworks Company, Limited, Darlington, and was put up under the superintendence of their engineer, Mr. Nabholz. The swinging portion of the bridge has been laid with native timber setts—viz., 18,000 beech blocks 8½" by 4½" by 3½"—supplied to the contractor by Messrs. James Fitzsimon and Son, of this city; and the asphalt has been laid by the Limmer Company. The new bridge was designed by Mr. Bindon B. Stoney, Engineer to the Port and Docks Board; and the general contract, foundations, stonework, &c., was carried out by Mr. W. J. Doherty, and completed within four months of the time specified in the contract.

There was no special ceremony at the opening, the contractor formally handing over the bridge to the representatives of the Port and Docks Board, Mr. J. P. Griffith, Assistant Engineer of the board, representing in the absence of Mr. Stoney. Among those present were several members of the Corporation, officials connected with the shipping interest, and some members of other public bodies. The wife of the contractor, accompanied by her son, were the first to drive across the bridge, followed by another vehicle carrying a soldier and some other men; then came the rush of the anxious crowd, and the event was over.

## THE KILLALOE SLATE TRADE.

THE Irish slate trade is suffering, like other industries, from the general depression of trade that has existed for several months. The report submitted at the general meeting of the shareholders of the Killaloe Slate Company, held on the 26th ult., goes on to state that for the half-year ended in 30th June last, there had been a loss on the half-year's workings of £104 3s. 8d. Under these circumstances, although there was a balance on the closing of the accounts remaining to the credit of profit and loss of £1,222 15s. 11d., the directors could not on this occasion recommend the payment of any dividend. The depression in the slate trade, to which the directors alluded in the last report, had up to the time of closing of the accounts shown no symptoms of being alleviated; on the contrary, still lower prices had to be submitted to during the half-year just passed than those which were current in the six months immediately preceding. Despite of these most unfavourable statements they were by no means disposed to take a gloomy view of the prospects of the company. The Garrybeg Quarry continues to open out most favourably, and the confident expression of opinion which the directors in March last ventured to express, that before the close of 1879 that quarry would be in full operation, and that the class of slates produced therefrom would materially add to the reputation of the company's works, is in a fair way of being realized.

The chairman regretted that the directors were unable to give a dividend, and after pointing out some of the causes of the de-

pression said—"They had suspended operations at present at the Corbally quarries. The Garrybeg quarry was doing very well, and he hoped in a short time to have a favourable report of the results, as the slates were of a very valuable class, for which there was a demand. He saw no reason to depreciate the value of their property. The quarries were there; the slates were there; the produce was good, and when trade revived and matters improved, there was nothing to prevent them reverting to their accustomed dividends."

To an inquiry whether the company's slates were sold in Dublin, the chairman replied they were not, as they could not compete with the Welsh slates. It was also said at the meeting that it cost less to carry Welsh slates from Wales to Dublin, than the Irish slates from Nenagh to Dublin. In reference to this rather extraordinary fact the chairman stated "that he waited upon the traffic manager of the Great Southern and Western Railway Company in reference to the rates of carriage charged for their slates, and pointed out that company had granted a special and more liberal rate to the Victoria Company in Kerry. At first it was stated that no such special rate existed, but a reference to the books disproved this. What was the result? Not that the Killaloe Company got the special rate, but that it was abolished for the Victoria Company."

Before the meeting broke up it was announced by the chairman that he had just received a letter from their secretary stating that their business was reviving. While agreeing that the railway company should deal fairly in matter of rates with the Killaloe Slate Company, we hold the same opinion now as formerly, that sufficient energy is not evidenced by the latter body in developing the slate trade, and pushing in the Dublin and other markets. If we mistake not, Killaloe slates and marbles could several years ago have been had in abundance in the Dublin market with other marbles and limestones.

## THINGS NOT GENERALLY KNOWN.

THAT a tablet with the name of the architect, Francis Johnston, and date, &c., was originally inserted in the wall of the tower of the old Military Gate at Barrack Bridge, i.e., old Bloody Bridge, but on the removal of the gate, and its re-erection as an entrance gate to Kilmainham Royal Hospital grounds, this tablet was not re-inserted. For what reason? may it be asked.

That the late Michael Stannton, the founder of the *Weekly Register*, and for the last years of his life Collector General of Taxes, wrote three pungent pamphlets, with alliterative titles, during his political career, besides being author of a "Repeal Prize Essay," and that the same Michael Stannton was a greater adept at arithmetical figures than figures of speech.

That a very voluminous writer, still living, a Dublin man by birth, a poet and essayist, and editor of more than one journal, is the honest son of a respectable and industrious washerwoman!

That a Dublin coffin-maker built the Conciliation Hall (now a flour store, but originally the head quarters of the Repeal movement), and that the same building genius laid out a square and built the houses that surround. The tide ebbed and flowed in the cellars of the hall by the river, and the water rats held high carnival below, while the tribunes of the people thundered above. In the square the social evil developed not long after the erection of the square, and the "quality" departed to make room for less particular tenants.

That the Mansion House, during the mayoralty of a "great gun," dead for several years, was known to be one of the coldest and most inhospitable mansions in the city, where it was said the rats contracted the rheumatism and the mice the cataplexy. So said a noted

citizen, alderman, and others dead and living.

That an Irish Bishop of the Disestablished Church once built a house in Dublin from the top downwards, and built it well;—and how? asks the wondering reader. By a system of continuous shoring, to be sure; but let the professional reader guess under what conditions the work was begun and finally prosecuted to a successful completion.

## THE NEW POLICE BARRACK AND STATION.

FOR the buildings to be erected at corner of Store-street and Talbot-place as a barrack and station for the Metropolitan Police, there were twenty-five competitors. The tenders ranged from £5,350 down to £4,170, at which latter sum, we understand, Mr. George Tyrrell was declared the contractor. Mr. J. M'D. Bermingham, Great Brunswick-street, supplied the quantities. It would not have been a matter for wonder if, in the present depressed state of trade in this city, as well as everywhere else, the list of those competing had been a much longer one. We regret that we have been unable to procure, and lay before our readers, full particulars.

## ROYAL DUBLIN SOCIETY'S NEW AGRICULTURAL BUILDINGS.

THE Rev. Canon Ragot has, we think, very properly drawn attention to the projected new buildings at Bill's Bridge, concerning which it is stated that the council of the society are adopting plans without advertising for the same. The Canon writes:—

"A large sum of money has been placed in our hands, to be used, as I conceive, in the best way and manner for the agricultural interests of the country; and before expending a vast amount in building, I would venture to suggest that the wise rule generally followed in all similar undertakings be adopted by our society—viz., let the council state what they require, and then advertise for suitable plans and designs, giving a first prize, say, of £50 and a second of £25; let the awards be made by a jury consisting of four or five members of the society, along with four or five experts such as Sir Brandeth Gibbs, Sir Edward Lee, Jacob Wilson, Esq.; George Hunt, Esq., C.E. (engineer to the R. A. S. of England); and S. U. Roberts, Esq., C.E. (Board of Works). I am quite sure if such a plan as I propose be carried out, Dublin will be able to boast of the most suitable and commodious agricultural buildings in the kingdom. I also believe that the great majority of our members will concur with the above proposal."

Now that a permanent building is about to be erected for the conduct of the agricultural department, it behoves the council to commence operations in a sensible and straightforward manner. There should either be an open competition for all comers, or an invitation should be given to a selected number of respectable architects to compete. There is something more than mere external design to be considered, or the erection of an "imposing" building or block of buildings. In the matter of arrangement and accommodation there is much to be considered in regard to the proposed buildings, and good plans will only be forthcoming on the society acting as the councils of all respectable institutions are in the habit of acting.

[Since the above was in type we learn that Canon Ragot was in error, and that no such course has been contemplated by the society. The misapprehension has, no doubt, arisen from the manner in which the committee entrusted with preliminary arrangements have endeavoured to receive suggestions from every member of the Committee of Agriculture who wishes to express his views on the subject. Sketch plans were distributed and suggestions invited, so that the accumulated experience of the society in the management of its shows might be fully utilised. It would thus appear that the steps hitherto taken by the society are perhaps the best that could be taken to attain the object in view—viz., a clear and concise statement of the requirements of the society, on which public competition can be invited.]



# DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.\*

## LECTURE II.

*Ventilation, Lighting, and Warming.*—The air in our houses is rendered impure in various ways, but chiefly by our respiration, and by the products of combustion that are allowed to escape into it from lights and fires. The air that we expire contains a certain quantity of foul, or putrescent, organic matter. It is charged with moisture, and contains about five per cent. less oxygen and nearly five per cent. more carbonic acid than the air that we inspire. It is neither the diminution of oxygen nor the increase of carbonic acid in the air of rooms that is of the greatest importance to living beings, but the accumulation of foul organic matter and the excess of moisture. It is this which renders such atmospheres stuffy, and not the diminution of oxygen or the increase of carbonic acid, which are so slight as to be of little importance, even in overcrowded rooms. Nevertheless, since the increase in carbonic acid is proportional to the increase in other impurities, and since we can estimate very accurately the amount of carbonic acid in the air, the increase of carbonic acid is taken as an index of the impurity of the atmosphere. The average amount of carbonic acid in the outer air is four parts in ten thousand. Prof. De Chaumont found by his experiments that, whenever the amount of carbonic acid in the air of a room exceeded the amount in the outer air by more than two parts per 10,000, the air of the room was not fresh, that is, say, that the foul organic matter in it and the excess of moisture were sufficient to make the room stuffy. Hence, two parts of carbonic acid per 10,000 of air, over and above that in the outer air, are taken as the limit of respiratory impurity. As an adult breathes out, on the average, six cubic feet of carbonic acid in ten hours, it is clear that, in order that the air of the room in which he is may be kept fresh, he must have 30,000 cubic feet of air in the ten hours, or 3,000 per hour. In this climate we cannot change the air of a room more than three or four times per hour without causing draught, and so each person ought to have from 1,000 to 750 cubic feet of space, the air of which should be changed three or four times per hour respectively. The way in which this space is arranged is also a matter of some importance. For instance, the air above a certain height is of little use for purposes of ventilation if combined with too small a floor space. . . . It is obviously of importance that the floor space should be properly distributed; but, about this, so far as dwelling-houses are concerned, there is no need to enter into particulars. We are not able to insist on anything like 1,000 or 750 cubic feet of space in all instances, and amounts varying down to as low as 300 cubic feet per individual are adopted. In the case of a family living in one room, which is so small as to afford less than 300 cubic feet per individual, it is usual to consider that the limit of overcrowding which should be allowed by law has been reached. We cannot have, as a general rule, rooms so large that the air does not require changing while we are in them. Thus, for instance, a person in a bedroom for seven hours consecutively requires about 21,000 cubic feet of air if the atmosphere is to be kept fresh. Supposing him to have this without change of air, he would require a room, say, 70 ft. long by 30 ft. wide and 10 ft. high. This makes it quite clear that in rooms such as we have there must be a change of air.

In studying ventilation from a practical point of view, the chief agents that we have to consider are the winds, and movements produced in the air by variations in its density, usually brought about by variations in its temperature; the property of the diffusion of gases by means of which the air is brought to a uniform composition when the tempera-

ture is the same throughout, being one which, practically speaking, does not affect the question much. With artificial methods of ventilation, in which the air is forced in a certain direction by machinery, we have little to do, as few of them are suitable for use in dwelling-houses. The wind, as an agent of ventilation, is powerful, but its disadvantage is that its action is irregular. When all windows and doors can be opened, a current of air which may be imperceptible is quite sufficient to change the air of a house in a very short time, and houses that have windows on both sides are for this reason much more healthy than houses built back to back, which can never have through ventilation. This is the direct action of the wind, which may generally be utilised in large rooms with windows on opposite sides, like school-rooms, by opening that which is nearest to the direction from which the wind comes, a little way at the top, and also opening the one which is diagonally opposite to it at the top a little further than the first one. . . . But the aspirating action of the wind is, perhaps, of greater importance. When the wind blows over the top of a chimney, or over a ventilating pipe, it causes a diminution of pressure of the column of air in the chimney or ventilator, and so produces an up-current, upon precisely the same principle that little bottles made for distributing scent about apartments act. For this reason, it is, as was hinted in the last lecture, important that chimneys should be higher than the surrounding buildings, so that any wind that blows may cause or increase an up-draught in them. In this way not only is smoke prevented from ascending into the rooms, but the amount of air carried through rooms up the chimneys is increased, and the ventilation of the house improved. There being, then, in every house, and frequently in every room, a shaft—whether sufficient or not, we will consider by-and-bye—for the escape of air, it becomes of the first importance for us to consider the means by which air may be admitted into our houses, and into our rooms. In summer, and whenever the air is as warm outside the house as inside of it, there is no difficulty about this. We have only to open the windows—wind-doors, remembering the proverb that “Windows were made to open and doors to shut”—on both sides of the house, and the air is generally changed fast enough, but it is in winter, when the air is colder outside the house than inside, that the difficulties arise, and so in speaking of ventilation I shall always assume that the air outside the house is colder, and therefore heavier, and exercises greater pressure than the air inside it. This being the case, it follows that if we open a window, or make an aperture through a wall into the outer air, or through the wall of a room into a passage, or staircase, in which the air is colder than it is in the room, air will come in. In fact, a room under these conditions may be looked upon as if it had water outside of it, and it is quite apparent that, in such a case, if you bored a hole through the wall into the water on the other side, water would come in, and the air of the room would escape by the chimney. This is precisely what happens with the cold air outside. If no special opening is provided through which the cold air can come into a room, it enters by such openings as there are; by the apertures between the sashes of the windows, by the—perhaps fortunately—badly-fitting doors, crevices in the floors, walls, and cupboards, through the walls themselves, as has been shown by Pettenkofer, and sometimes down the chimney. If, then, air will come in through an aperture placed in any position, it becomes necessary to consider where apertures should be placed, and what precautions are necessary with regard to them. Theoretically, the admission of pure air should be at the lowest part of the room, and the extraction of the vitiated air, which is warm, at the upper part of the room; but practically the outer air cannot be admitted without certain precautions at the lower part of

the room by mere apertures, as everybody knows who has been accustomed to sit in a room when a draught comes under the door. On the other hand, if an aperture is made into the outer air through a wall at a few feet from the floor, the air enters in a cold straight current for some distance into the room. If the aperture be higher up, it comes in and falls, just as water would do, on to people's heads, somewhere about the middle of the room. So it is quite clear that certain precautions are necessary in the admission of air so as to prevent draughts. Since we have, or ought to have, windows in all rooms, it will be convenient to consider, first, the ways in which they may be utilised for the admission of air. We cannot simply open a sash window at the top or bottom in cold weather without feeling a draught, but there are several ways in which this difficulty may be got over. The simplest is by placing a board of wood underneath the lower sash, as suggested by Dr. Hinckes Bird, whose original model I have here. This board is sometimes now made with a hinge in the middle, so that it can be got in and out more easily; or the board, instead of being placed under the lower sash, may be placed across, from side to side, in front of the lower part of the lower sash, so that the lower sash may be opened to a certain height without any air coming in below it. These boards may be covered with green baize, or some other suitable material, so as more perfectly to prevent the entrance of the air at the lower part of the window. In either case, the bars of the sashes at the middle of the window are no longer in contact, and air comes in at the middle of the window, between the two sashes, taking an upward direction, in the form of a fountain, and producing no draught. This shows us the direction in which cold air ought to be admitted into a room—after the fashion of a fountain, in which it can be readily obtained, owing to its greater pressure, and not after the fashion of a waterfall. This simple plan, which I recommend very strongly for adoption, has two disadvantages, one that nervous people always fancy there is a draught if they see anything like a window open, and the other a much more practical one, but one that is common to most forms of ventilation that are inexpensive—that a certain quantity of blacks enter. These conditions are, to a certain extent, got over by the plan suggested by several inventors—of boring holes through, or cutting pieces out of the lower bar of the upper sash. Such holes are not seen; and the air comes through them in a vertical direction into the room. They can also be fitted with little boxes containing cotton wool, through which the air will be filtered and deprived of soot, &c. This, of course, very considerably diminishes the amount of air that enters, and the cutting also weakens the framework of the window.

Louved ventilators may also be used in a variety of ways in connection with windows. Where there are Venetian blinds, it is only necessary to open the top sash, pull the Venetian blinds down in front of the opening, and place the louvres so that they give the entering air an upward direction. Glass louvres fixed in a metal framework, may also be used, a pane of the window being taken out and one of these ventilators substituted for it. The louvres can be opened and shut by means of a string, and they are so fixed that it is impossible to break them by doing so. They are generally fixed instead of one of the top panes of the upper sash. It is better to place them lower down in the upper sash; and this is true of all inlets of air. If they are too high up, the air being admitted in an upward direction, impinges against the ceiling, rebounds into the room, and produces a draught. The metal frame-work of these ventilators requires oiling and attending to, or it will get rusty. In some places fixed louvres of wood, or better still, of strong glass, may be fixed with advantage, or swinging windows with sashes hung on centres may be used, as, for example, in water-closets; and these, where it is advis-

\* By Prof. W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.



able, may be prevented from being closed by means of a small wedge of wood screwed to the frame-work. The blind so often placed across the lower part of a window may also advantageously be used as a ventilator, or, where no blind is required, a glass one may be used, this being made to swing forward on its lower edge, so as to give the entering air an upward direction when the lower sash is opened. Where very large quantities of air require to be admitted, one or more sashes of a window may be made to swing forward in this way, as is now done in the large hall of Willis's Rooms. Near to all windows, in cold weather, the air of the room is colder than at other parts of the room. This may be obviated, when considered advisable, by the employment of double windows, the layer of air between the two windows preventing, to a very considerable extent, the cooling of the air inside the room. It is not advisable to have double panes of glass in the same sash, as the moisture between them will render them more or less opaque in certain states of the weather. With double windows, air may be admitted by opening the outer one at the bottom and the inner one at the top. Where French easement windows are used, as they sometimes are unadvisedly in this climate, ventilation may be provided by having a louvred opening above the casements of the window, or by making a glass pane or panes capable of being swung forward on the lower edge.

(To be continued.)

#### ADVERSARIA HIBERNICA, LITERARY AND TECHNICAL.

WE unearth from a newspaper of 1821 a curious epistle or application from a would-be sculptor, who was no doubt conscious of his own ability to execute a work of high art. The Dublin Library Society, shortly after the death of Richard Kirwan, our great native mineralogist, were anxious to have a bust of him executed. Among the candidates for the honour of chiselling the bust of Kirwan there was a "broth of a boy" of the name of James Meary, a stonecutter or monumental mason, a craftsman who, no doubt, however belacked in education, was competent for the work of cutting death's head and cross bones, fat cherubs, Time with his hour glass, "Memento Mori," and epitaphs in prose and rhyme, on marble slabs or ordinary limestone. The following is the epistle, *verbatim*, addressed by Mr. Meary to the Bust Committee:—

"To the Committee appointed to see Mr. Kirwan's Bust done by the Dublin literary Society.

Please your Honour's I see no advertisement in the *freemans journal* yesterday as I get it every morning and pays sixpence per week for the reading it, setting fourth that all statuaries should send in their proposals for dooing a bust of one Mr. Kirwan that died lately it seems in this town. Now's there's near a man in Dublin that could doo it cheaper nor neatter than myself, and Why, Bekase I ave a Boy that's almost out of his time, his name is tin Slattery and can work nigh hand as well as myself to help me with, and if your Honours wants to see Any of my work youle go any day to Jameses Church yard, youle see there's a head stone lately put over One Mr. banks, with death on one side and time with his hour glass and sithe in the other, I did Death and tim did time; and I defi any man in Dublin to do them better. I ave as Nise a Block of black stone, the same as Mr. Smith did them Chirrup's Heads with upon the outside of the castle chapel where I worked myself and Tim for 3 months, and where id be yet if it wassent that i was beelyed, bad luck attend them Same that dun it on Mr. Johnstone, but its no matter id be up to them yet, and as i think Tim and I could have done it any how in a week say thirty shillings for myself and a guinea for tim, thats 2l 12s. 8d, and say too more for the block (which is as cheap as bog Water) that would make it in all 4 8 3 which is cheap enuff in all consihine, if your honours approves of the proposal please to send to me to No. 28 Patrick's clothes [Patrick-close] a pare back, and if i and Tim bees out Mrs. Casee a very daceut woman, that myself and tim diets

with, will take any message for your honours humble servant to command

JAMES MEARY.

N.B.—if any other offers to do the gob cheaper may be sunthing else mite be in your honours way I would be glad to make a head stone or tome stone for Any of your honours, direct as above."

The above epistle of James Meary is rich, and, perhaps, the postscript is richer. The Mr. Smith mentioned was Edward Smyth, the sculptor, who worked under Gandon at the Four Courts, Custom House, and Carlisle Bridge, and other works; and also under Francis Johnston at the Castle Chapel. The epistle we have reproduced may not be genuine, though we have no reason for doubting its authenticity. Quite as strange epistles have been received by public committees in our own day, from applicants for public works and appointments. In the *Builder* of last week there was printed a *verbatim* letter from one of the candidates for a local surveyorship at Enfield, and an appointment by-the-bye which was given to a local builder or contractor—a personage who cannot, except in rare instances, be supposed to possess qualifications superior to a regularly trained surveyor or architect. Local boards, however, in numerous instances, are in the hands of cliques, and their advertisements are frauds. The most incompetent men are often appointed, and in many instances the relatives or friends of the members. We have known policemen, discharged soldiers, porters, pig rearers, and handymen, applying for the office of assistant surveyors and sanitary inspectors, and some of them getting the appointments by the votes of the intelligent and enlightened members of the local boards.

A correspondent in last issue of this journal draws attention to an occurrence which happened before our time, viz., the fall of a block of houses about 1814-15 on the site now occupied by the General Post Office Building in Lower Sackville-street. We are unable to throw any personal light on the nature of the buildings or the builders, but from an examination of several city houses built since the commencement of this century, we are able to say that there was not a little bad or careless building done in the earlier part of this century. The mortar used was certainly better made than what is to be found in speculative houses of the cheaper kind at present building, and the walls were thicker and the brickwork had a better bond; but we have found in several instances the timber used in floors, partitions, and roofs was very light and of insufficient scantling. The houses in Westmoreland and D'Olier streets, before they were hewed away in frontage and cut up for the purposes of shops, appeared to be externally well finished, but on the taking down of one or two, and the alteration of some more we witnessed very poor floors, joists, and roofs, and evidence of other scamped work. We think we heard several years ago or read somewhere that Aaron Baker, who succeeded Gandon, the architect, in some of his works and appointments, superintended the erection of the houses in Westmoreland-street. Upper Sackville-street contains some old well-built houses, but those in Lower Sackville-street are not, as a whole, in our opinion, nearly so good.

Talking of Sackville-street we are reminded that it was stated in a late issue of this journal that Lower Sackville-street was formerly Drogheda-street, and it is contended that this is not a fact. Well, all we know is that the length of roadway extending from Earls-street to Carlisle Bridge was known as Drogheda-street, and continued marked down as such on the map or plan of the city in Wilson's Dublin Directory for several years after the opening out of the quay end of the street and the building of Carlisle Bridge (see maps in Wilson's Directory, and other city maps). What is now known as Upper Sackville-street was certainly called The Mall and Sackville-street respectively for some years before the close of the last century. It may, of course, be equally a fact that The Mall was known and marked as

Drogheda-street before it became Sackville-street; but, before the terms of Upper and Lower were used, The Mall, or upper street, was Sackville-street, and the lower one Drogheda-street. When the latter name was dropped, the two halves of the street became respectively Upper and Lower Sackville-streets.

Returning to the subject of the houses, the run-up and tumble-down ones that existed on the site of the the General Post Office, we find the following remarks in relation thereto in Wright's Dublin (1821):—"The site on which the new Post Office is erected was previously occupied by a range of houses corresponding with those in the same street, near Carlisle Bridge, and used for some time as a temporary barrack; but they were so badly built, and so shaken by their numerous inmates, that immediately after the military were removed they all fell down; fortunately no lives were lost."

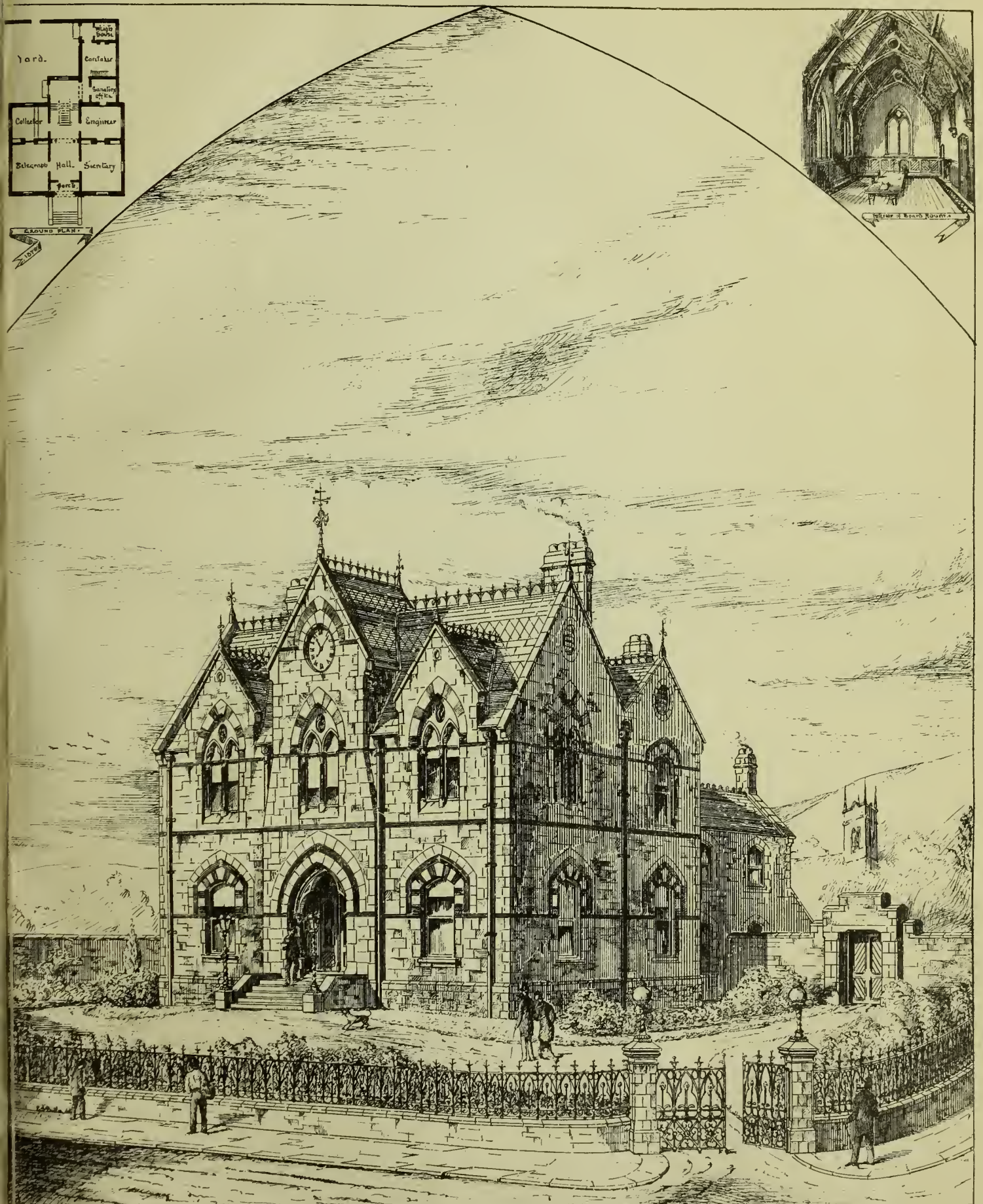
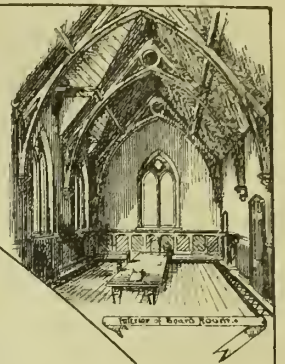
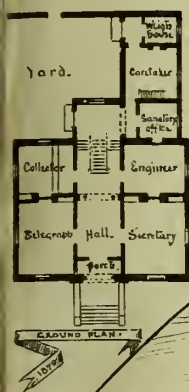
The word "Jerry" building was not known in those years, though undoubtedly unprincipled builders existed then as now. Workmen received much less wages, and performed, on the whole, much better work; but it must be admitted that the cost of living was not much more than half of what it is at present.

Here is another allusion to old Drogheda-street from the pages of Wright, in reference to Carlisle Bridge:—"After the opening of the New Custom House, vessels of large burden had no necessity to proceed further up the river than that limit, so that communication between the opposite sides of the river was facilitated by the throwing of Carlisle (or the New) Bridge across the river from the end of Sackville (then Drogheda) Street to Westmoreland-street (then College-lane); this piece of architecture was commenced in 1791, and finished in three years," &c.

In Wilson's Map of the City, 1796, Tucker's-row (now Sackville-place) is marked as an offset of Drogheda-street, and on the map in Wright's Dublin, 1821, Tucker's-row is an offset of Lower Sackville-street. Elephant-lane (now Tyrone-place) known and printed as such, appears in both of the above maps (1796-1821). Indeed Tucker's-row is still in the mouths of many of our old citizens, just as the name of Smock-alley continued to be used by the people for half a century and upwards after that once famous locality became Exchange-street. Tyrone-place is quite a recent transformation from Elephant-lane, or the still older Mellifont-lane. Instead, however, of calling Marlborough-street originally after an English Duke, it should have been named after the Irish chieftain or earl. The Tyrone, however, that gave his name to the old town mansion, off Marlborough-street, was not the ancient Ulster chieftain, but a modern Marquis of Waterford.

Did George IV., during his visit to Dublin in 1821, sleep on a four-poster with an old canopied form of roof, with plenty of drapery and other hangings? Was this four-poster, of special Irish design and manufacture, by a Dublin cabinet maker and upholsterer? Are these queries of any archæological importance?—not much, perhaps. However, about the year 1845, we were in a cabinetmaker's workshop, situated in an old timber yard, still existing, with an old house at the further end of it in Jervis-street, within two or three doors of Strand-street, when we heard an old workman telling a number of other listeners that the bedstead slept upon by George IV. was made in the lane or court close by. The entrance to this lane or court passes under a house within a door or two on the northern side of the old timber yard, but what was the name of the cabinet or bedstead maker who made the royal bit of furniture we remember not. In the early part of the present century the cabinet and chair trade was a prosperous one in Dublin, but before the close of the last century we think the trade witnessed its best days. The present century had advanced by several years before English or





Town Hall, Slembrake, Townshipp, Co. Dublin. A. H. Carson, Architect. &c.



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foreign made furniture was imported to any great extent. Besides native manufacturers of old standing and reputation, we had a few foreigners established as cabinetmakers in Dublin, and some of these were, we believe, descendants of the Huguenots. Later again came to Dublin some French refugees of the first Revolution, and that of 1830, and the cabinet work they turned out was beautifully finished. During the last half century in Dublin, the native cabinet and chair trade has suffered most severely, and this city has been flooded with a very large amount of slop work furniture of the most fraudulent and flimsy construction. Worse still, several of our so-called cabinetmakers and upholsterers have sold this imported furniture as their own manufacture, and a good amount of it was very tempting to the eye, but very Dead Sea fruit in usage. Stafford-street and contiguous streets, even forty years ago, witnessed a good native cabinet and chair trade, solid wood and solid workmanship; but chairs and tables, and chests of drawers, like "Jerry" houses, are now made to sell and fall asunder. Furniture is indeed made now-a-days for show, and upholstery, coverings, and trimmings for the same ends. There has been certainly some progress made in the design of furniture, but none in the construction or honesty of make. In our bedroom furniture there has also been an improvement. The iron bedstead, with its brass finishings, is a great advance in a cleanly and healthy direction over the old heavy four-poster, with its heavy funereal roof. Fleas or bugs, to be sure, are not yet extinct in many bedrooms or other rooms; but with cleanliness the latter, if not the former, could be stamped out of every homestead, even the poorest. Fleas, like the poor will, we fear, be always with us, particularly so long as the fairer sex continue to swathe themselves around like Egyptian mummies. The upholstery of the body needs to be kept as clean—rather cleaner than that of the bed or bed room, and an uncleanly person spells an uncleanly and uncomfortable rest or rather unrest. "Wash and be clean" is an admirable hit of advice, and a dirty house is a sure index that there is an amount of hidden uncleanness elsewhere. Eschew bad furniture and bad upholstery and household trash of other kinds, and your washing bill will be less in the year, though it will still be absolutely necessary for men and women to "wash and be clean" not only in the sight of the world, but in that of its great Architect. H.

## SUGGESTIONS FOR YOUNG BUILDERS.

### PART III.

(Continued from page 266.)

THE young draughtsman having got his paper on his board, either by pasting or pinning, his next move is to square his margin and centre lines, whether vertical or horizontal; and it may not be amiss here to say a word about boards. Like in every thing else there has occasionally been much discussion on this subject, but it is one that has greatly to do with taste and supposed convenience; fashion too has at times entered into the matter, but lengthened experience of office business has enabled us to come to the conclusion that the plainest and simplest board is the best. We would purchase one or two pieces of dry yellow pine at a timber merchant's, not less than 30 in. wide, 44 in. long, and 1½ in. in thickness, free from shakes and knots. Having had this timber in the office for a few weeks—where it may probably perform useful purposes, and develop any tendencies to warp or rend,—give it to a joiner and direct him to make a drawing-board, 42 in. by 29 in., clamped at the ends (but not mitre clamped), and ledged at the back with pieces 3 by 1½, let in for ¾ in. in depth, and dovetailed, thus leaving the board, whilst keeping level, free to expand or contract during alternations of the atmosphere, or the state of your paper; but a well-seasoned

yellow pine board will rarely give any trouble this way. If it shews a "truant disposition" early in life, set it aside for some other purpose than a "drawing-board." You will have no trouble in getting your board approximately square, nor is there any necessity for more, but be careful to have the edges shot perfectly true, especially the ends against which the stock of your T square constantly slides. Since we began to work with T squares, and purchased our first in Kennan's in Fishamble-street, we have noticed many improvements. The old method of mortising the blade into the stock has been superseded by the better way of securing it on to the upper side, thus leaving a clear run for the set square, which is now everywhere used. The blade also is different, having now-a-days a greater width at the stock than at the end, which greatly assists the steadiness of the instrument. The square we use at present is of baywood mahogany, having on blade and stock an edging of ebony. Never use a bevelled or fiducial edge, and early learn to work without blotting; this is easily acquired by cleanliness in your drawing pen. It was an old fashion to use the tee square for both horizontal and vertical lines, the consequence being that unless both square and board were true the angle of 90° could not be attained to; and in minute drawings, to a small scale, much awkwardness was the result. Of late years, however, the use of the set square does away with this as there is no difficulty in having it true, and of frequently testing it, they can be had of many materials, but we prefer ebonite or pear-tree wood. We have frequently cut them out of middle-aged sycamore veneer, a most useful thing to have in an office for many purposes, such as large curves for roads, canals, railways, or drawings of ships, or in fact any sort of rule, angle or curve, not usually sold in shops. A few convenient sized straight edges of mahogany or pear-tree, with set squares or angles, makes one independent of the so-called parallel rulers which can never be depended on. Greenheart is an excellent wood for straight edges; but were it not that it is liable to injury from its softness there would be nothing better than dry yellow pine, or white Norway deal.

In the choice of drawing instruments much depends on a good maker, and in this respect we believe Elliot of the Strand, London, to be as superior as are Trouton and Sims for field appliances. Of the two descriptions of pen in general use,—that is with and without the hinge in the blade,—we prefer the latter; the hinge in time becomes worn and uncertain, and the set of the pen cannot be depended on; its chief use in cleaning the pen can be readily dispensed with. Next to the pen the most constant tool is the hair-point compass. This should be solid and strong and of the best brass or silver—the object to be gained being an oily smoothness in the hinge, which should only be sufficiently tightened to prevent the limbs closing with their own weight. A tight compass is a sign of a careless and mediocre draughtsman.

The setting of the drawing pens ought to be early practised; unless from a fall or some such violence, a very few touches on a hone should be sufficient, but it is well to have a neatly mounted bit of Arkansas or Turkey stone in an office to serve as a grinder for pens and penknives, a small Lough Neagh hone, and some slips of school slate to use with water for cleaning the insides of pens. For fine etchings, Gillot's smallest pens can be by the Arkansas stone and hone he made to do wonders in practised hands. Keep a little trotter oil in a bottle in which are some chips of lead or shot; let it be hung where the sun will shine on it, and dip a feather into it so as not to disturb the fatty matter gathered at the bottom; by occasionally decanting you can have oil fine enough for watch makers' use, and valuable for setting the bow pens you may require for minute work, such as iron hand-railing, rivets, &c. When you have set your pen by passing it backwards

and forwards longitudinally on the stone, turning it at same time between your finger and thumb, use it with a rule on the stone exactly as you require to use it on the paper; this will remove any tendency to scratching, and prevent your points being too sharp. When drawing, keep the pen upright, the handle resting against the fore-finger, the thumb and middle finger holding the screw head, and whether with pen or pencil, and in colouring with a brush always work from left to right; never colour towards you, and keep in mind to work in such a manner as will give you the greatest freedom, otherwise you will have "namby-pamby" lady-like results, not at all artistic. In drawing circles in our young days we were frequently chagrined at the holes unavoidably made by the leg of the compass in the centre, and many were the means adopted to lessen the evil, such as gumming a bit of parchment in the centre to support the point, and using instruments with needle points, but all were more or less unsatisfactory; some five and twenty years ago instrument makers in Paris produced small bone or horn buttons with which the centre point can be effectually shielded as well as preserved, and these can be had in all the artists' warehouses or shops where mathematical instruments are sold. Clean transparent horn is another useful adjunct in an office; a few pieces of it carefully selected from the shop of the ironmonger or hardware merchant, kept flat in some cool place, between two pieces of board, will be found most useful for a variety of purposes that from time to time present themselves, particularly in map drawing and computations; valuable directions for which we hope to give in their proper place.

Avoid what are called Swiss instruments, like so-called Geneva watches that are made in Paris and in many parts of England; they are cheap but poor, shaky and unreliable. A good honest well-made English pen or compass, like a well-made rule or protractor, carries a truthful look about its clearly stamped figures that is not to be met with in the things produced in the Rue Roquet or de Flanders, or the back places of Birmingham or London. In Geneva there are a few makers whose productions are superb, and like their watches rarely to be got out of the locality, but the price is high, and it is a question whether for the same price an equally good, if not a better article, can not be had from an English house. When we were young there was a family named Walker in Dublin who could produce office instruments not to be excelled; but, perhaps, like the "Cross Read" razors and Irish cutlery their glory has departed, and Kertland's water colours, Cohen's pencils, and Walker's mathematical instruments are things of the past; but we must not forget Grubb's monster telescopes, and that a theodolite or level, or any field instrument can be yet had, made in Dublin, and by Irish workmen, "second to none."

Protractors, whether of metal or ivory, and station-pointers require great care in selection; their chief error is the "false centre"; this is particularly the case in all instruments for taking or plotting angles whether for field or office use, and the beginner need not be surprised if he find the practical result not always to agree with the theories of Euclid; however it is not difficult to detect the error if any exist. As a means of check in after life and a pleasing memento of office days, we would recommend the construction of a protractor on card board, or drawing-paper pasted on card board; better still a circle of sheet brass; in any case the centre should be removed, leaving a clear open of from 9 in. to 12 in. diameter; the dividing of this protractor is a work requiring patience, but its usefulness will well repay the trouble, and there are many instances in which a great deal of work may be plotted by the one laying down of the instrument on the paper, and all objectionable centre points or holes avoided.

The Ordnance Survey of these kingdoms have been from the first in possession of



plates engraved by the dividing circle of the great Ramsden, who supplied them along with his immense theodolites to take the observations for which Drummond invented the lime light. There is no necessity here to describe the *modus operandi* of an instrument so simple, although not known in every office; still when once seen its value is obvious, and is increased by having added the lettering of *all* the cardinal points of the compass. [Since commencing to write these "suggestions," we have been made aware of the fact that card-board protractors of a very superior production can be had from Mr. William F. Stanley, of Great Turnstile, London, the author of "A Descriptive Treatise on Mathematical Drawing Instruments."]

(To be continued.)

NOTE.—In last number the words "a drawing produced by a three H, or, perhaps, five HHH," should read "a drawing produced by a five, or, perhaps, HHH."

### COPYRIGHT.

LORD John Manners's Bill for consolidating and amending the law relating to copyright, has been issued. According to it the author of a book first published in her Majesty's dominions will be entitled to the copyright throughout those dominions, whether he is a British subject or not, or whether he is domiciled or resident in those dominions or not. With regard to a book first published out of her Majesty's dominions, the provision is that the author may acquire the copyright by republishing it in those dominions within three years from the first publication, if, at the time of the first publication, he is either a British subject or an alien domiciled in her Majesty's dominions. In this case the copyright would date from the publication. The time for the duration of the copyright is thus regulated by the Bill:—If the book be published in the lifetime and under the true name of the author, the copyright would endure for the life of the author and for 30 years after his death; but for 30 years only from the date of the first publication if the book be not published in the author's true name, or if it be published after his death. With regard to what would constitute an infringement of the copyright, not only would it be illegal to print a copy of the book without consent, but to print an abridgement or a translation of it, or to dramatise it by preparing or adapting it for representation on the stage as a dramatic piece, or to cause a dramatised version of it to be publicly performed. It is provided that no legal proceedings be taken or forfeiture incurred in respect of any infringement or copyright until registration has been effected with the Stationers' Company. And to register, the proprietor must deliver to the Registrar a copy of the book, accompanied by a verified statement showing the name, address, and calling of the publisher and of the proprietor of the copyright, and the place and date of the first publication. If the author's true name is published, the statement must also include his name, address, and calling. The book thus delivered to the Registrar is directed to be sent on by him to the British Museum. Moreover, it is provided that the assignment of a copyright be invalid unless it be registered; and that every registered proprietor shall have absolute power of disposing of the copyright, with the exception that it is left open for rules to be made for *caveats* being entered against any such disposition. These and other rules for the regulation of registration are to be made by the Board of Trade, subject to the approval of Parliament. In the case of any work published in series, it is provided for the copyright of the whole to belong to the proprietor, as if he were the author of the whole, when the parts have been composed on the terms that the copyright in the composition shall belong to the proprietor. This rule is, however, subject to certain qualifications, among which is one which says that, except

with regard to an encyclopædia, the proprietor of the copyright may not publish any of the compositions separately from the rest of the book without the consent of the author. And after three years from the first publication, the right of publishing the composition separately would vest exclusively in the author. The provisions of the bill with respect to books published in series are made to apply to newspapers as regards original compositions of a literary character, but not as regards the portion containing news. One of the provisions directs that the publisher of a newspaper shall send a copy of every number to the British Museum within a week of publication. With regard to lectures, it is provided that if they be other than those delivered in a University, public school, college, or public foundation, or by any person in virtue of or according to a charity, the author is to be entitled to a copyright in them, just as if they were books. It will not, however, be necessary to register a lecture which is not published. As long as a lecture has not been printed and published by the author, a man will infringe the copyright if he delivers the lecture without the written consent of the proprietor. But a newspaper is not to be debarred from publishing a report of the lecture in the current edition, unless the author before or at the time of delivering the lecture give notice of a prohibition. The copyright in dramatic pieces or musical compositions, which are either printed and published or publicly performed, is subjected by the bill to the following rules:—It is an infringement to perform one publicly, or any part of one, or any abridgement or adaptation, without the written consent of the proprietor. If a piece or composition is publicly performed but not printed and published as a book, it may be registered without the delivery of a copy or a statement of the publisher's name. The first public performance or the first publication by printing and publishing as a book, whichever may be the earliest in date, is to be deemed the first "publication." Part 2 of the bill relates to paintings, sculptures, engravings, and photographs; part 3 to colonial copyright; part 4 to foreign copyright; and part 5 contains some general provisions relating to legal proceedings and the like.

### CORRESPONDENCE.

#### "THE AGENDA."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—That celebrated author, Charles Dickens, in "Dombey and Son," writes thus:—"Now, Dombey," said Miss Blimber, "I am going out for a constitutional." Paul wondered what that was, and why she didn't send the footman out to get it in such unfavourable weather. Paul was in a similar state of perplexity as to an "analysis," and although I am more ashamed of my ignorance than I can well express, I have been looking out for that "agenda" we heard so much of some time ago, hoping, like Paul Dombey, to discover some intelligible result. But there are things no fella can find out, such as how silicate of lime can be in a brick-bat, or why Anderson left Dycer's, or what's at the back of the moon. The next move of the R. I. A. I. with the agenda is involved in a similar obscurity.—Yours, &c.

"BOW PEN."

Goulding's Ride,  
26th August, 1879.

### THE MACHINERY OF GAS TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—When working at my trade in England and elsewhere, I have often been deeply pained at being unable to reply to the statements of parties connected with the gas trade, and who were well aware of the assistance given by the majority of the members of the Corporation to carry out what they termed "the gas swindle" in Dublin. Nine years ago some of these workmen could challenge me to find in the Dublin gas district a meter, except one

attached to a public lamp, that was not indicating the transit of one-seventh more gas than entered it. Further, they could tell me—as well as I knew it—the circumstances under which that state of things was brought about, and why in the public meters the water lines were at their correct elevations. Later still, I have had to listen to the sneering comments of those people on the intelligence displayed by the ratepayers of Dublin, when, as burgesses, they voted for the re-election of aldermen and councillors who, being directors or shareholders in the Gas Company, had a direct personal interest in the revenue of that company being increased; and, having such an interest, had used their power and influence as corporators by making such an appointment to the inspection of public lighting as no other similar body out of Ireland would have dared to do. I have heard sneering on this subject, which you would decline publishing, but which I, although ashamed of it, could not contradict.

From the public journals we learn that weekly reports are made to No. 1 Committee of the illuminating power of the gas supply being over 16 candles. These reports omit stating that the pressure on the gas was only 5-tenths of an inch at the time of its illuminating power being measured, and a report never appears of the illuminating power of 5 cubic feet of the same gas hourly burning under a pressure of 3½ in. Why? Because the illuminating power of the nearly 17-candle gas might, under such conditions, prove to be about 12-candle, and the holders of gas shares in the Corporation never required an inspector to warn gas consumers of the amount of loss sustained by them in this way from the effects of such excessive pressure.

There are at present a few members of the Corporation who are earnestly doing their best in the service of the ratepayers, and who, as members of the General Purposes Committee, have been for the past two years endeavouring to solve the (to them) riddle of such excessive pressure. That your readers may better understand the action on the pockets of the ratepayers of different pressures on the gas supply, I give the following tabular comparison of the bulk of gas stated by the late inspector of public lighting in 1873 to be annually consumed in the public lamps, and the bulks indicated by the public meters as having passed through them during different years under different pressures, the governor and burner in each lamp only permitting at any time the passing and consumption of 4 cubic ft. of gas per hour. The lamps are known to have been lighted for the same number of hours during 1870, '71, and '72, and to have been lighted half an hour less per night during 1878:—

Year	Average Amount of Pressure	Number of Lamps	Gross Bulk per Annum, as stated by the late Inspector	Gross Bulk per year, per Meter Indications	Bulk per Lamp per Annum	Bulk per Lamp per Annum reduced by half hour's lighting per night
—	5-tenths	3,300	31,000,000	—	9,394	8,664
1870-1	Unknown	do.	—	33,755,915	10,229	9,499
1871-2	8-tenths	do.	—	32,383,400	9,813	9,083
1877-8	2½ inches	3,520	—	36,938,600	—	10,494

The Inspector of Public Lighting in 1878 told the members of the General Purposes Committee that "in the public lighting there was no loss from pressure." Was he misleading his employers when he made that statement? Perhaps he has since corrected it, and advised them to adopt the means taken by the Board of Works and several other public bodies, of having a somewhat correct account of the bulks of gas consumed in their lamps—that of placing dry meters on them, or to have pressure regulators placed at the inlets of the meters, but, above all, to dispute paying for a foot more gas than



had been consumed, and to compel restitution of all overcharges for gas that may have been paid by the Corporation to the Gas Company, and so protect the ratepayers from paying for large bulks of gas doubtfully indicated by the *wet meters* as having passed through them. The amount of these doubtful bulks of gas per lamp per annum in 1877-8 are shown by the difference between the top and bottom lines of figures in the extreme right-hand column of the above table—viz., 1,830 cubic ft., which for 3,520 lamps lighted during that period amounted to 6,441,600 ft., the charge for which, at 4s. 6d. per 1,000, came to £1,449; and many believe that the Gas Company could have afforded a handsome Christmas box out of it. Wet meters with water lines at too high an elevation are downright vulgarity now-a-days, as excessive pressure does the work more respectably.

During 1875 I, on four occasions, through the columns of the IRISH BUILDER and other public journals (the *Freeman's Journal* would never publish any letter of mine on the subject), endeavoured to show the gas consumers of Dublin how the increase in the amounts of their gas bills was solely due to the action of excessive pressure on the gas passing through the wet meters used by them; and on two of these occasions I also endeavoured to direct the attention of the ratepayers to the wanton waste of public money under the head of lamplighters' wages, an illustration of which I now give, taking one year as a specimen of the ten years, during which that waste of money was persevered in by the Corporation. While the last contract for lighting the public lamps existed, the gas company were bound, on getting three months' notice, to clean (*twice a-week*), light, and extinguish the public lamps at an extra charge of 7d. per 1,000 ft. of gas consumed, and they were bound in heavy penalties to do the work properly. For 31,000 000 ft. of gas this charge would have amounted to £904; but the Corporation accounts show that for the year 1872-3 the sum of £1,550 was paid under the head of lamplighters' wages, and the proportion of the salary of Inspector of Public Lighting for doing very badly the cleaning, &c., of the public lamps.—Yours respectfully, JAMES KIRBY.

27th August, 1879.

#### THE BRITISH ASSOCIATION AT SHEFFIELD.

THE opening meeting of the British Association for the Advancement of Science took place at Sheffield on 20th ult., the inaugural address being delivered by Professor G. J. Allman, F.R.S., president for the year. The address was not by way of general review of the progress of science, but was devoted to the subject of Protoplasm "as the most generalised expression of living matter." There is not much in the address as a whole (though an able one) suitable for reproduction in these pages, but the following passages may have an interest for some readers:—"When a thought passes through the mind it is associated, as we have now abundant reason for believing, with some change in the protoplasm of the cerebral cells. Are we, therefore, justified in regarding thought as a property of the protoplasm of these cells, in the sense in which we regard muscular contraction as a property of the protoplasm of muscle? or is it really a property residing in something far different, but which may yet need for its manifestation the activity of cerebral protoplasm? If we could see any analogy between thought and any one of the admitted phenomena of matter, we should be bound to accept the first of these conclusions as the simplest, and as affording a hypothesis most in accordance with the comprehensiveness of natural laws; but between thought and the physical phenomena of matter there is not only no analogy, but there is no conceivable analogy; and the obvious and continuous path which we have hitherto followed up in our reasonings from the phenomena of lifeless matter through those of living matter here comes suddenly to an end. The chasm between unconscious life and thought is deep and impassable, and no transitional phenomena can be found by which as by a bridge we may span it over; for even from irritability, to which, on a superficial view, consciousness may seem related, it is as absolutely distinct as it is from any of the ordinary phenomena of matter. That consciousness is never manifested except in the presence of cerebral matter or of something like it, there cannot

be a question; but this is a very different thing from its being a property of such matter in the sense in which polarity is a property of the magnet, or irritability of protoplasm. I know that there is a special charm in those broad generalisations which would refer many very different phenomena to a common source. But in this very charm there is undoubtedly a danger, and we must be all the more careful lest it should exert an influence in arresting the progress of truth, just as at an earlier period transitional beliefs exerted an authority from which the mind but slowly and with difficulty succeeded in emancipating itself. But have we, it may be asked, made in all this one step forward towards an explanation of the phenomena of consciousness or the discovery of its source? Assuredly not. The power of conceiving of a substance different from that of matter is still beyond the limits of human intelligence, and the physical or objective conditions which are the concomitants of thought are the only ones of which it is possible to know anything, and the only ones whose study is of value. We are not, however, on that account forced to the conclusion that there is nothing in the universe but matter and force. The simplest physical law is absolutely inconceivable by the highest of the brutes, and no one would be justified in assuming that man had already attained the limit of his powers. Whatever may be that mysterious bond which connects organisation with mental endowments, the one grand fact—a fact of inestimable importance—stands out clear and freed from all obscurity and doubt, that from the first dawn of intelligence there is with every advance in organisation a corresponding advance in mind. Mind as well as body is thus travelling onwards through higher and still higher phases; the great law of evolution is shaping the destiny of our race; and, though now we may at most but indicate some weak point in the generalisation which would refer consciousness as well as life to a common material source, who can say that in the far off future there may not yet be evolved other and higher faculties from which light may stream in upon the darkness, and reveal to man the great mystery of thought?

The address was delivered in the Albert Hall, and well received; and a cordial vote of thanks was voted to the president.

At the general meeting in the afternoon a memorial of the association to Lord Beaconsfield was read, approving of the removal of the natural history collection to South Kensington, and of the recommendations of the Royal Commission on Scientific Instruction that, together with the removal of the site, there should be a change of administration. Lord Beaconsfield, in his reply to this memorial, intimates that it is not intended to propose to Parliament any immediate change in the management of the natural history collection.

On Thursday, the 21st, the real business of the association commenced. All the sections met, and in nearly all the departments presidential addresses were delivered, and the meetings, although well attended, were not inconveniently crowded.

A considerable audience assembled to hear the address of the president of the Geographical Section, presided over by Commander Clement Markham, C.B., of Arctic Expedition fame, who obtained a cordial reception. He explained the practical uses of geographical knowledge, the objects and aims of geographers, and the position which their science holds relatively with reference to the other sciences, and positively as a distinct body of knowledge with defined limits.

In the Biological Section (which was divided into three departments—zoology and botany, anthropology, and anatomy and physiology) the opening address was delivered by Professor Mivart, who discussed the service rendered to science by the great naturalist Buffon. Among the papers read subsequently was one by Mr. Skertchly on "The Evidence of the Existence of Palæolithic Man during the Glacial Period." He announced that he had himself made re-

searches among the chalk boulders of Norfolk and Suffolk, and had discovered there a number of flint implements, from which fact he deduced the existence of man in Great Britain during the glacial period.

The Geological Section met in the Friends' School-room, and Professor P. Martin Duncan, vice-president of the Geological Society, read an address as president of the section. He spoke of the carboniferous formation as giving the earliest clear and definite idea of a land surface on the earth. Its duration might be estimated by the world-wide dispersion of identical species over the same serial horizons, and its relation to the preceding and subsequent formations may be appreciated from the fact that the carboniferous flora, lasting as it did from the bottom to the top of the formation, was foreshadowed in the Devonian and that it founded the Mesozoic. Fire-clay, coal roof ironstone, all subaerial or shallow, swampy, semi-lacustrine productions succeeded each other. Great gravels and sands were intercalated, and the traces of the rivers of the age are to be found like underground gutters. Soil, consisting of clay and warp, had to be formed before the plants could grow, and the coal forests once on the surface are now down hundreds of yards, and are covered over and over again by sunken successors. In reflecting upon the history of the carboniferous deposits in relation to the subsequent great changes in the physical geography of the earth, the idea that geological histories repeat themselves does not assume importance. It is true that there were important triassic, oolitic, wealden, neocomedian, and tertiary lands whose vegetation has been metamorphosed into coal, but the wonderful depth, the extraordinary vertical repetition of organic and inorganic deposits, and the remarkable crust movements of the carboniferous age are without subsequent examples.

Mr. J. Robinson, president of the Institution of Mechanical Engineers, presided in the Mechanical Section, and delivered an address on the progress of mechanical science in the present day, which he described, in contrast with the golden age, the silver age, and the age of brass, as the age of steel. At the time when railway extension was becoming general, about forty years ago, the use of steel in this country was confined mainly to tools for mechanical purposes, springs for vehicles, weapons of various sorts, and implements for agricultural and domestic uses. The number of purposes to which it is applied has now been largely increased, and its price has diminished mainly in consequence of the scientific and mechanical energy brought to bear upon the manufacture and improvement of this metal. Twenty-five years ago the price of cast steel tyres was 120s. per cwt.; it is now from 18s. to 25s. per cwt. Thirty-two years ago Krupp, of Essen, succeeded in manufacturing cannon of cast steel, and they are now ordinary commodities with those nationalities which can afford such expensive weapons. Since that time Krupp has produced about 2,000 guns, the heaviest being when finished 72 tons (16-in.). Having touched upon the inventions of Sir W. Armstrong, Sir J. Whitworth, Siemens, and Bessemer, Mr. Robinson pointed out that their discoveries had been the great factors in the reduction of cost price, and the extension of the use of steel rails, tyres, axles, shafts, &c. Another product of the steel manufacture which was of immense importance is that of steel castings—castings obtained from the crucible precisely in the form in which they were to be used in the construction of machinery. This production of castings for engineering purposes is gaining an enormous and rapid development; and when it is known that in this metal we obtain castings of three or four times the strength of the strongest iron castings, the importance of this experimental discovery cannot be overrated. It is hoped that ere long we shall be able to produce cylindrical boiler plates rolled solid from the ingot, much after the fashion in which weldless steel tyres are now obtained, and that the weakening of these



plates by the existing necessity for forming horizontal rivetted joints may thus be avoided.

In the Economic Science and Statistics Section Mr. Mundella, M.P., took the chair. Professor G. Stoney, secretary of the Queen's University, Ireland, presided in the Mathematical Section, and read an address upon the present position of natural science upon the earth. He pointed out that in mechanics valuable progress can be made by the mere mathematician, the student of deductive science; and in chemistry similar progress can be made by the mere experimentalist. He regretted the destruction of the useful work of the University with which he was connected, and he expressed a gloomy opinion that in regard to the advancement of science in the north of Ireland much would hereafter depend on the wisdom of the regulations for scientific training which may be first adopted by the new University of Victoria.

On Friday all the sections held their meetings, and great interest was centred in the Anthropological Department, where Dr. Tylor delivered an address; and in the Geographical Section where Major Serpa Pinto was announced to read a paper detailing his journey across Africa from Benguela to Natal.

Dr. E. B. Tylor, vice-president, in his address, in the Anthropological Department, commenced with a very startling retrospect. He said—Looking back 4,000 to 5,000 years, what is the appearance of mankind as disclosed to us by the Egyptian monuments and inscriptions? Several of the best marked races of men were already in existence, including the brown Egyptian himself, the dark white Semitic man of Assyria or Palestine, the Central African, of two varieties, which travellers still find as distinct as ever, namely, the black or negro proper and the copper-coloured negroes, like the Bongo or Niam-Nyam of our own time. Indeed, the evidence accessible as to ancient races of man goes, says Dr. Tylor, to prove that the causes which brought about their differences in types of skull, hair, skin, and constitution did their chief work in times before history began. Since then the races which had become adapted to their geographical regions may have, on the whole, undergone little change while remaining there, but some alterations are traced as due to migration into new climates. Even these are difficult to follow, marked as they are by the more striking change produced by inter-marriage of races. Now, the view that the races of men are to be accounted for as varied descendants of one original stock is geologically probable from the close resemblance of all men in body and mind, and the freedom with which races intercross. If it was so, then the fact of the different races already existing early in the historical period compels the naturalist to look to a pre-historic period for their development to have taken place in; and, considering how strongly differentiated are the negro and the Syrian, and how slowly such changes of complexion and features take place within historical experience, this pre-historic period was probably of vast length. The evidence from the languages of the world points in the same direction. In times of ancient history we already meet with families of languages, such as the Aryan and Semitic, and, as later history goes on, many other families of languages come into view, such as the Bantu or Nair of Africa, the Dravidian of South India, the Malayo-Polynesian, the Algonquin of North America, and other families. But what we do not find is the parent language of any of these families—the original language of which all the other members are dialects; so that this parent tongue should stand towards the rest in the relation which Latin holds to its descendants, Italian and French. It is, however, possible to work back by the method of philological comparison, so as to sketch the outlines of that early Aryan tongue which must have existed to produce Sanskrit and Persian, Greek and Latin, German, Russian, and Welsh, or the outlines of that early Semitic tongue which

must have existed to produce Assyrian, Phœnician, Hebrew, and Arabic. Though such theoretic re-constructions of parent languages from their descendants may only show a vague and shadowy likeness to the reality, they give some idea of it, and what concerns us is that theoretical early Aryan and Semitic or other such re-constructed languages do not bring our minds appreciably nearer to really primitive forms of speech. However far we get back, the signs of development from still earlier ages are there. The development of civilisation requires a long period of pre-historic time. Experience and history show that civilisation grew up gradually, while every age preserves recognisable traces of the ages which went before. The woodman's axe of to-day still retains much of the form of its ancestor, the stone celt in its wooden handle. The mathematician's tables keep up in their decimal notation a record of the early ages when man's ten fingers first taught him to count. The very letters used in writing may be followed back to the figures of birds and beasts, and other objects drawn by the ancient Egyptians, at first as mere picture writing, to denote the things represented. Yet, when we learn from the monuments what ancient Egyptian life was like 5,000 years ago, it appears that civilisation had already come on so far that there was an elaborate system of government, an educated literary priesthood, a nation skilled in agriculture, architecture, and metal work. Even if it could be proved that the flint implements of Abbeville or Torquay are not really so ancient as the Pyramids of Egypt, this would not prevent us from still assuming, for other and sufficient reasons, a period of human life on earth extending many thousands years further back. There appears no particular reason to think that the relics from the drift beds or bone caves represent man as he first appeared on the earth. The contents of the caves especially bear witness to a state of savage art in some respects fairly high, and which may possibly have somewhat fallen off from an ancestral state in a more favourable climate. Indeed, the savage condition generally, though rude and more or less representing early stages of culture, never looks absolutely primitive, just as no savage language ever has the appearance of being a primitive language. Naturalists not unreasonably claim to find the geographical centre of man in the tropical regions of the old world inhabited by his nearest zoological allies, the anthropomorphous apes. In such a view, added Dr. Tylor in conclusion, there was enough to make careful quest of human remains worth while in those districts in the equatorial forest regions from Africa across the Eastern Archipelago.

At the close of the address, Sir John Lubbock moved a vote of thanks to Dr. Tylor.

Professor Huxley, in seconding it, complained that fuller information was not supplied.

Dr. Tylor, in reply, said he had propounded theories which he believed to be true, and for their confirmation it was an absolute matter of necessity that he should rely on the researches of geologists and others in chemical science.

The papers read included one on the "Manufacture of Crucible Steel," a new process of fume-condensing and colour tests for sulphur and phosphorus in iron and steel. Mr. John Hollway described his new process in metallurgy for the smelting of sulphide ores. Mr. Hollway pointed out that pyrites and ore sulphides can be decomposed and fused by the heat developed in the oxidation which takes place whenever air is rapidly brought into contact with an excess of molten sulphides. He added that, where sufficient water power is available, a plant capable of treating 15,000 tons of pyrites can be erected at a cost of £1,000. On account of its simplicity and economy it is expected that the new process will take the place of the ordinary smelting and also of the wet processes now in use.

Professor Duncan presided in the Geological Section. A report was presented by Mr. Pengelly describing his explorations in Kent's Cavern, Torquay; and Professor Adams, of King's College, London, contributed a paper relating to the discovery of a bone cave near Cappagh, County Waterford. The cave is tunnel-shaped, and when discovered was full of stratified deposits. The upper stratum contained bones representing man, pig, horse, red deer, ox, goat, sheep, dog, wolf, fox, marten, hare, rabbit, and birds. Charcoal occurred frequently, and various implements of stone and iron were also found. The second stratum contained bones, and on removing a floor of stalagmite the explorers found the bones of a large bear embedded in it. Dr. Evans reported on the bone caves of Borneo, and Professor Hawkins upon those of Derbyshire.

In the evening, Mr. William Crookes, F.R.S., delivered a very interesting lecture on "Radiant Matter," referring at the outset to the speculations of Faraday on the constitution of matter, and showing how greatly opinion on this subject had progressed.

On Saturday, the 23rd, only three sections met. The excursions formed the principal source of attraction, and as the weather was fine the scientific deliberations of the association were deserted for a ramble in the country. Altogether there were twenty-four excursions, including trips to Conisbro Castle, Wentworth House (where the visitors were entertained at luncheon by Earl Fitzwilliam), Youlgreave and Arborlow, Cresswell Craggs, Clumber and Sherwood Forest, Thoresby and the Dukeries (with a luncheon provided by Earl Manvers), Haddon Hall and Bakewell, Matlock and Wirksworth, Chatsworth (with luncheon provided by the Duke of Devonshire), Castleton and the Peak, and Wharnciffe Craggs. Sir John Lubbock, Bart., M.P., conducted a party, including Miss Lubbock and several ladies, to Arbor Lowe, twenty-six miles from Sheffield. The intervening hills and moors of Derbyshire were traversed in carriages and four-in-hand coaches, on a fine sun-shiny morning; the members on reaching Youlgreave were divided into two sections, one of which was welcomed at luncheon by Mr. T. W. Bateman, of Middleton Hall, and the other by Mr. V. K. Armitage, of Lomerdale House. Afterwards the reunited visitors assembled at the pre-historic temple or tomb of Arbor Lowe, on an elevated spot commanding an undulating view of hill and dale, intersected by white stone-walled boundaries of fields, the whole external aspect of the country thus strongly resembling that of a portion of Western Wales. Arbor Lowe consists of a circular plateau rather more than fifty yards in diameter, sprinkled with huge stones lying on the ground. Outside this is a deep circular ditch, bound on the outer side by the remains of a circular bank even now six or eight yards high, in places where it has been least destroyed by denudation and other agencies of time. One of the largest stones is lying in an inclined position, its upper end projecting somewhat into the air; on this natural pulpit Sir John Lubbock took his stand, and addressed the listeners seated in a semicircle on a part of the "vallum" or bank opposite. Sir John Lubbock began by giving more minute measurements of the remains than those just stated; the stones in the outer circle, he said, were thirty or forty in number; some of them being broken, it was impossible to tell exactly; they varied from six to eight feet in length, and from about three to four in breadth; they were all flat on the ground, and it was doubtful if they had ever been placed upright. Smaller stones are scattered inside the circle, and three large ones near the centre may have formed a dolmen, or sepulchral chamber. Near the southern entrance to the circle was a large barrow mound; two persons had tried digging at it, to discover the interment, but without success, till in 1845 the third explorer, Mr. Thomas Bateman, laid bare a six-sided cist, containing



calcareous human bones, two urns, a pin made from the leg-bone of a small deer, a quantity of the bones of water rats—which bones were often plentiful about such tombs—and other minor matters. The vases were food urns, and not cinerary vessels. The original purpose of the circle was doubtful; it had evidently been a tomb, and the tombs of the venerated dead had a tendency to change into temples. The Khasias, a primitive tribe of India, were at this day building megalithic monuments and offering food and drink to the diseased; the tombs in time acquired a reputation, and some of the men buried in them were gradually transformed into deities. If they asked him the age of Arbor Lowe, he could not give the simple answer, "I do not know." Archaeologists ascribed pre-historic monuments either to the stone, bronze, or iron ages, then came the historic period. There were reasons for supposing that Arbor Lowe belonged to the bronze age. Probably it was the last resting-place of some one greatly loved or greatly feared, and to realise the scene of the interment would require the sacred fire of the poet. He closed by saying: Let us, however, make one appeal in the name of the dead. Do not let this monument be destroyed unless, indeed, for some great purpose. In the elegant words of Ruskin: "The dead still have their right in them. That which they laboured for, the praise of achievement, or the expression of the religious feeling, or whatever else it might be which they intended to be permanent, we have no right to obliterate. What we have ourselves built we are at liberty to throw down; but what other men gave their strength and wealth and life to accomplish, their right over does not pass away with their death; still less is the right to the use of what they have left vested in us only. It belongs to their successors." Sir John Lubbock closed by saying that he was glad that in the hands of Mr. Bateman the circle before them ran no risk of destruction.

In the evening, the Mayor of Sheffield gave a banquet in the Cutlers' Hall in honour of the visit of the association. A large and distinguished company assembled, the Mayor having on his right and left Professor Allman, the Archbishop of York, Professor Haughton, Professor Mivart, Major Pinto, General Thullier, Commander Cameron, Professor Williamson, Dr. Martin Duncan, Mr. Mundella, M.P., and the Master Cutler. In all about 500 gentlemen were present.

On Monday, the 25th, all the sections met, after attending the School of Art for the purpose of hearing an address upon physiology and natural science by Dr. Pye Smith. Mr. Mundella, M.P., presided in the Economic Science Section, where Dr. J. H. Gladstone, member of the London School Board, read a paper on "Elementary Natural Science in the Board Schools of London," in which he set forth the efforts which are being made by that board to teach scientific matters to the children. This was followed by a paper on somewhat similar lines by Mr. J. F. Moss, the secretary of the Sheffield School Board, and Mr. Mundella read a letter which he had received from a gentleman in Liverpool in favour of the teaching of science in the elementary schools. In the discussion which followed the reading of the papers, Mr. F. Wilson advocated the study of the science of seeing, which must really form an introduction to all the education that followed. Dr. Wornald regretted the spasmodic efforts hitherto made in the direction of scientific training, and was in favour of the establishment of a training college for scientific teachers. The Rev. A. Harland, while in favour of the introduction of scientific education to children, pointed out from a personal incident that the inspectors themselves were ignorant in many instances of science. In his own school one of the inspectors had declined to examine the children in botany, because, he said, he knew nothing about it himself. Miss Lydia Becker expressed a strong opinion in favour of giving scientific instruction to children,

on the ground that it would enable them to economise much in their household labours in their future lives.

Several other papers were read in the other sections of varying interest. It was announced that the next meeting of the association will take place in August, 1880, at Swansea, in South Wales, and in the following year at York.

On Tuesday all the sections met with the exception of the Anatomical and Physiological Department of the Biological Section which took a holiday. Mr. Shaw Lefevre's paper "On the Existing Agricultural Depression, its Causes and Effects" was read in his absence by Mr. Mundella, M.P., to a very full audience. Some interesting papers were submitted in the Section of Anthropology on "The Geological Evidence of the Antiquity of Man," and that of "Geography, in Arctic Research." The agricultural depression in Mr. Shaw Lefevre's opinion is connected most remotely with the depression which has weighed so heavily upon commerce and manufactures also during the last five years. Both are probably due, in the main, to causes operating over a great area and over a long period, and are indications of the flow of the great tide of advancing population and cultivation over the great plains of America. The collapse of credit in 1873, and the consequent discredit and depression, has been much more felt on the other side of the Atlantic than on this. The imports to the States fell off enormously; the investment there of foreign capital wholly ceased. In this country we have felt severely the temporary loss of our largest customer for our exports, but our other customers in every part of the world have made up for the bulk of our exports, though not for their value. With reviving trade and renewed confidence in America, the investment of capital will again flow towards it, and we may again confidently expect a renewal of our export trade. It is impossible the people of the United States can long continue to supply the world with food and take nothing in return for it. It would be a most useless waste of time and energy to extend efforts in trying to reverse the commercial system established by Sir Robert Peel, or in making inquiries with a view to the return to exploded fallacies and obsolete systems; but it is a time when, attention having been so much directed to the consideration of agriculture, we may with great advantage inquire whether the conditions under which it is carried on in this country are such as to attract and encourage to the utmost the application of capital and labour to the land; whether a system of tenure which seems calculated to forbid the combination of ownership and occupation to prevent security for improvements effected by the occupier, and to accumulate land in the hands of persons who are frequently unable to afford capital for its improvement, is the best suited for the development of agricultural industry.

In the Mathematical and Physical Science Section reports of committees were read on astronomical clocks, the rock declivities, and the instruments for detecting fire-damp in mines. A number of papers were submitted and discoursed upon in this section, and in the Chemical Science and Geology Sections, but they were not of general interest.

Professor Dawkins, speaking on the "Antiquity of Man" to the Anthropological Department, controverted the views of some French archaeologists, that man lived in the Miocene age, and that certain flints bearing traces of manufacture were the work of men who lived in that age. He thought it far less difficult to believe that these flints were the work of some of the higher and extinct forms of monkeys than that they were man's work.

In the evening a *conversazione* was given to the members by the local committee in the Cutlers' Hall, and a number of interesting experiments were made illustrative of the telephone and microphone, the writing telegraph, and various other modern scientific appliances.

On Wednesday, the 28th, the concluding

meetings were held. Many of the visitors left Sheffield discouraged by the weather, while a few others remained behind for the projected excursions of that and the following day, which were made to places of interest in the district. Only one of the sections—that of Chemical Science—assembled, and the papers submitted were few.

Mr. W. H. Watson, F.C.S., read a paper on "Detection of Milk Adulteration." From analyses of milk from various dairies and by a comparison of the results obtained with the circumstances existing as to the character and quantity of the food nature of different cows, conditions and health of them at particular periods and changes of the seasons of the year, the author concludes that cows' milk is subject to considerable variation in composition. He has found in many instances milk from well-fed healthy cows to contain as little as 10.5 per cent. of total solids, and from 8.5 to 9 per cent. of solids not fat. The results of other experiments are compared, and he suggests that the present limits adopted by public analysts for genuine milk should be reconsidered.

In the discussion which followed, Professor Wanklyn remarked that since the Adulteration Act had been put in force several thousand milk dealers throughout the country had been fined on the faith of the standards, and, if the standards themselves were not warrantable, many of those persons had mainly to thank him for having been fined. He had always had the courage to rely on chemical work when submitted to full discussion, and he took upon himself the responsibility of advising and to some extent forcing the adoption of the standards, but he would not take upon himself the responsibility of stopping the discussion of the standards. He contended that there was great regularity in the composition of milk. If they took all the milk in England to-morrow and analysed it, the solids not fat would be found to be 9.3 per cent., but the total solids in milk were not so constant as the solids not fat. The practice he followed was to state the results of his examination of milk in the terms of the standard, 9.3, but to refrain from what was practically advising prosecution unless something like 19 per cent. of water was found. It was important to take the mean standard, because if they took a low standard they would be licensing all the milk dealers in the country to adulterate their milk. He, therefore, advised analysts to take the mean standard, and as a rule not to recommend action unless 10 per cent. of water was shown.

Mr. H. A. Allen complained that Mr. Watson's paper, while containing a number of things which, if new, were not true, and if true were not new, would produce a feeling that injustice was done to a certain class of traders. As a public analyst he (Mr. Allen) had a larger district under his charge than any other analyst in England, and he could endorse every word Professor Wanklyn had uttered. If a man sold bad milk, whether natural or artificial, there was *prima facie* evidence to condemn him. The standard should be that of average milk, and a prosecution should not be commenced unless the milk fell decidedly below the standard. He recommended the enactment of a standard.

Mr. W. Thompson, of Manchester, urged that the act had produced adulteration, because, before it came into operation, a milkman did not know what a chemist's power was, and was afraid to water his milk. Now, however, he knew how far he could go, and he adulterated his milk to that extent, so that the public obtained an article of proportionately low quality.

Dr. Gilbert said he had investigated the milk question, and was surprised to find how little variation there was in genuine milk.

Professor Williamson and Dr. Dewar, the president, thought no blame attached to Mr. Watson for having presented to the section the facts which he had ascertained as the result of his own observations.

At the concluding meeting the acknowledgments of the association to the people of Sheffield for the hospitality evinced towards



them, and the exertions which had been made in every way to secure the success of the meeting, were cordially given.

At a meeting of the general committee, presided over by Dr. Allman, it was announced that the grants of money appropriated to scientific purposes by the general committee amounted to £960. In the grants, the list of which we subjoin, it will be seen that some well-known Irish scientific labourers participate:—A—*Mathematics and Physics*: Dr. Lodge, new form of high insulation key, £10; Professor Adams, standard of white light, £20; Professor Everett, underground temperature, £10; Dr. Joule, determination of the mechanical equivalent of heat, £50; Sir W. Thomson, elasticity of wire, £50; Mr. Glaisher, luminous meteors, £30; Mr. G. H. Darwin, lunar disturbance of gravity, £30; Professor Sylvester, fundamental invariants, £50; Mr. J. Perry, laws of water friction, £30; Mr. W. E. Ayrton, specific inductive capacity of Sprengel vacuum, £20; Rev. Professor Haughton, completion of tables of sun heat co-efficients, £50; Professor G. Forbes, instrument for detection of fire-damp in mines, £10; Mr. J. M. Thompson, inductive capacity of crystals and paraffines, £25. B—*Chemistry*: Mr. Dewar, spectral analysis, £10. Dr. Wallace, development of light from coal gas, £10. C—*Geology*: Professor Duncan, R.M., report on carboniferous polyzoa, £10; Professor A. L. Adam, caves of South of Ireland, £10; Professor Seeley, viviparous nature of ichthyosaurus, £10; Mr. John Evans, Kent's cavern exploration, £50; Mr. John Evans, geological record, £100; Professor W. C. Williamson, miocene flora of the basalt of North of Ireland, £15; Professor Hull, underground waters of Permian formations, £5. D—*Biology*: Dr. Pyc Smith, elimination of nitrogen by bodily exercise, £50; Mr. Lane Fox, general anthropological notes, £20; Mr. Stainton, record of zoological literature, £100; Dr. M. Foster, table at zoological station at Naples, £75; Dr. A. Gamgee, investigation of the geology and zoology of Mexico, £50; Sir J. Lubbock, excavations at Port Stewart, £15. F—*Statistics and Economical Science*: Dr. Farr, anthropometry, £50. G—*Mechanics*: Mr. Bramwell, patent laws, £50. Total, £960.

Want of space has prevented us from reproducing *in extenso* some excellent papers of special and general interest read at the meetings of the association.

## THE POLDOODY LIGHTHOUSE WORKS.

### THE SUPERANNUATION ACT.

THE mention by Mr. Ben. Bulben of a Treasury Minute touching on superannuation, in our last number, appears to have had a startling effect upon officials, if we may judge from the number of letters we have received asking for information; and, as it appears that there is some difficulty in obtaining a copy of a paper which we should have supposed could be had at all the Government printing offices, we willingly give an extract:—

### SICK LEAVE.

(Extract from Treasury Minute of 30th June, 1857.)

"My Lords are of opinion that the practice which has grown up of late years of applying the powers conferred on this board by the Superannuation Act to cases of this description [sick leave] has introduced an unnecessary complication, and that such cases are more suitably and safely met by leaves of absence, more or less prolonged, according to the length of service and general claims of the officer, and the nature of the illness. Leave of absence on full pay for the recovery of health should not exceed six months; and, if longer absence from duty should be necessary, not more than half salary should be allowed for a further period not exceeding six months, by which time it may be expected that it will become apparent whether the officer can return to the effective discharge of his duty."

[It will be seen from this extract that to send an officer about his business in the very unceremonious manner described by Mr.

Thomas Bulben (if his information was correct) is clearly illegal. If, on the other hand, *he applied for* and got even the six months' leave allowed, he could not have much to complain of.—ED. I. B.]

## TRADE IN PARIS.

THE building trade and other industries appear to be more brisk in Paris than in any of the British capitals. The painters have as much as they can do, a good deal of work having fallen behind in consequence of the unfavourable weather. The railway shops are full, and the workers therein labour from six to seven p.m., and the men employed by the gas companies are said to be working twelve hours a day. The engineer and iron trades are still rather slack, but with prospects of improvement. The brass trade begins to improve, and jewellers are rather busier. Printers both in the book and lithographic trades are not quite so well employed as they have been; and there is somewhat of slackness in the tanning and currying trades. On the other hand, coachbuilders and refiners are exceptionally busy. Textiles are always quiet at this season, and there is not much doing in the hosiery and silk-mercery trades. The failures in the latter half of July numbered 56, or 18 less than happened in the corresponding period of 1878.

## NEW MORTUARY CHAPEL, GLASNEVIN.

THE ceremony of dedication of the new Mortuary Chapel at Glasnevin Cemetery took place on Friday last. The building is to be known as "The Chapel of the Resurrection of our Lord." It has been erected, from designs by Mr. J. J. McCrthy, R.H.A., by Mr. William Murphy, Dame-street. The dimensions are as follow: length, 79 ft. by 29 ft. 6 in. wide; across transepts, 47 ft. by 21 ft. 6 in. In the interior the walls are divided into bays by engaged columns and arches, each bay having triple arcades. The ceiling is coved and divided into compartments by moulded arches springing from carved capitals. The windows are filled with stained glass, and the floor is laid with mosaic. The material used is granite, with a judicious admixture of Portland. The cost was about £8,000. On same occasion a new entrance to the cemetery from Finglas-road was opened.

## NOTES OF WORKS.

KINGSTOWN.—The Commissioners require tenders for the construction of a new sewer at Monkstown Crescent, estimated to cost about £250.

CORK.—Tenders are required by the Corporation of Cork for a wrought-iron swing bridge across the river Lee, with cast-iron cylinder foundations. Tuesday, 30th inst.

ST. COLMAN'S COLLEGE, NEWRY.—The works at this building, which have been in progress for past two years, are now completed, and the establishment opened for business. It has been erected by Messrs. M'Shane and Lavery, from designs by the late Mr. Timothy Hevey, Belfast.

The following works are in progress under the superintendence of Mr. Alexander M'Alister, architect, Belfast:—

New church in connection with the Convent of "The Good Shepherd," Ballynafeigh, Belfast. Silo and Matthews, contractors.

Branch convent for "The Sisters of Mercy," Sussex-place and Joy-street, Belfast. J. and J. Guiler, contractors.

Parochial house, Ballycastle, County Antrim, for Very Rev. P. M'Alister, P.P.

Trench House, County Antrim, for Arthur Hamill, Esq., J.P. J. and R. Thompson, contractors.

Two semi-detached villas in Galgorm-road,

Ballymena, County Antrim, for James M'Alister, Esq., merchant, and James Moore, Esq., solicitor, Ballymena. Hugh M'Cann, contractor.

Villa at Ballyhackamore, County Down, for James Morrison, Esq. Samuel White, contractor.

Terrace of five houses at Mount Pottinger, and twenty houses at Bridge End, Belfast, for Mr. William Kearney.

Flour mill and wheat stores, with engine and boiler houses, and chimney 180 ft. high, in Divis-street, Alexander-street West, and Bertie-place, Belfast, for Edwd. Hughes, Esq.

Schools, Ballintoy, County Antrim, for Rev. P. Magorrian, P.P. James M'Loughlin, contractor.

Gallery in Larne Catholic Church, for Rev. F. M'Kenna, P.P. Robert Howard, contractor.

Mortuary chapel in Milltown Cemetery, Belfast, for John Cramsie, Esq. Joseph Duff, contractor.

Thirty-nine houses in Blackstaff-road, Gaffikin-street, and Moore's-place, Belfast, for Edward M'Hugh, jun., Esq. J. and J. Guiler, contractors.

Terrace of four houses at Beechmount, Belfast, for Mr. John M'Alinden. Daniel Murray, contractor.

CHURCH RESTORATION.—The parish church of Luton is being restored. It is chiefly in the Decorated Norman style, and dates to about the fourteenth century. Plans for the whole restoration, at a cost of £11,000, were prepared by the late Mr. G. E. Street. About half the work has been done, and on Sunday the rebuilt south porch was opened. The restoration is a handsome Early English piece of chequered work in stones and flint.

## HOME AND FOREIGN NOTES.

ORGAN BUILDING.—The Messrs. Telford and Telford, of St. Stephen's-green, have erected in the parish church of Donadea, Diocese of Kildare, a costly and handsome new organ, the gift of Sir Gerald G. Aylmer, Bart.

THE TIMBER CARRIERS' STRIKE.—The strike among the men employed in timber carrying at the North Dock, Liverpool, was settled on the 26th ult., the men agreeing to go in upon the old terms, the masters having refused any revision of wages or hours of labour.

WOOD PAVING CONTRACT.—The tender of Messrs. J. Mowlem and Co. to lay down wood paving in front of the Royal Free Hospital, London, at 8s. 6d. per yard, has been accepted, also to pave with wood the streets surrounding University College Hospital, at 9s. 9d. per yard; the contract in both instances including three years free maintenance and 10d. a-yard for maintenance for fifteen years.

SANITARY ORDERS AND GUARDIAN RESOLUTIONS.—In reference to the new Sanitary Order (commented upon elsewhere) the following resolution was proposed by a member at the last meeting of the Mountmellick Union: Mr. W. H. Cobbe declared that they had paid too much money to their staff under the sanitary acts. They had paid too much to the sub-sanitary officer and to the sanitary officer, and to the consulting sanitary officer they had paid enormously too much. Since the latter was appointed they had paid him £10 for five visits. He begged to propose—"That from our experience of the bad times, we now consider that we ought to take every means in our power to reduce taxation, and we therefore avail ourselves of the opportunity afforded by the new order to dispense with the services of consulting sanitary officer from this date, and appoint a superintendent medical officer of health instead, under the 5th section of the order of the 8th August, 1879, now read, at a salary of £1 a month, and we re-appoint the sanitary sub-officers under this order." He thought £1 a month was quite enough for the superintendent medical officer of health. After some discussion the following summary resolution was carried:—"That the consulting sanitary officer's duties cease to-day, and that he be appointed medical superintendent officer of health, at the salary of £1 per month." What will the Local Government Board say to this? and what will the doctors think of it? Other union sanitary authorities or guardians are "up" and acting in the same spirit.



**THEATRE ROYAL.**—Messrs. Bennett and Son will offer for sale on the 12th inst., seven Theatre Royal Hebertures of £125 each.

**"JERRY" (?) BUILDING IN BELFAST.**—On Saturday morning, two large dwelling-houses in course of erection in the Upper Crescent, adjacent to University-road, fell with a terrific crash. The houses were almost ready for the roofs—in fact all the brickwork remaining undone was the completion of one of the gables. The watchman in charge of the premises had a very narrow escape.

**A HEAVY FINE.**—At the Borough Court, Newry, a man named Alexander was mulcted in a fine of 10s. and costs for wheeling a barrow on the footway in Canal-street. We need in this city increased vigilance on the part of our police. They are paid for taking cognisance of everything that interferes with the free passage of pedestrians through our streets, and surely a provincial town should not eclipse the metropolis in such matters.

**A MARKET-HALL FOR BRAY.**—At a meeting of the Bray Commissioners on Thursday last, a letter was read from Lord Brabazon offering on his own and Lady Brabazon's part to expend the sum of £4,000 in the erection of a suitable market-hall on plans submitted by his own architect, a nominal rent to be paid for the building by the commissioners. The matter was referred to the surveyor to confer with his lordship's architect as to the site and style of the intended building. A resolution was passed expressing their desire to co-operate in this desirable object.

**TRADES UNION CONGRESS.**—The Trades Union Congress this year will take place in Edinburgh, commencing on the 15th of this month and lasting the five following days. Besides the subjects in the programme, somewhat similar to those of last year, the numerous disputes between employers and workmen which have occurred for several months past, will be brought under discussion. These, the Parliamentary Committee think, "will probably lead to the consideration of proposals for a more extended and complete form of organisation amongst trades unions."

**PUBLIC HEALTH COMMITTEE.**—The weekly returns presented on Friday last showed that 28 infected dwellings were chemically disinfected, and 142 articles were disinfected in the hot-air chamber; 10 cwt. of unsound animal food was confiscated, and 12 samples of food collected for analysis. The committee ordered summonses to be issued for non-compliance with sanitary notices in 133 cases. The committee had under consideration a letter from the L. G. B. in reference to the proposed loan of £100,000 for completing the paving of the city, and with a view thereto it was ordered that a minute inspection be made of all the public sewers and house drains in the unpaved streets, in order that any defects discovered in either should be at once remedied, and that wherever desirable house drains constructed in masonry should be replaced by stoneware pipes.

**MILFORD HAVEN,** the finest harbour in the world, is at last to have a dock worthy of such a harbour. Mr. Froude stated in his evidence on the stability of our ironclads that they should undoubtedly have more beam, but unfortunately there was no dock wide enough to take them. That difficulty will exist no longer than March next, for by that time Mr. Samuel Lake has just bound himself under very heavy penalties to complete for £82,000 the great docks at Milford now constructing for the company of which Mr. E. J. Reed is chairman. Mr. Lake is known to be a man of indomitable energy and ready resource. He has invented a new mode of building concrete walls under water, and is now proceeding with the work by three shifts' night and day, using the electric light and every other available expedient to enable him to economise cash and time.—*Broad Arrow.*

**THE SANITARY CONGRESS.**—The Sanitary Congress and Exhibition of the Sanitary Institute of Great Britain will be held at Croydon, from October 21 till November 8 inclusive. Dr. Richardson, F.R.S., has been elected President of the Congress, and a large and influential Committee, with Mr. John Corry, Chairman, has been formed. Amongst the Vice-Presidents are the Archbishop of Canterbury, Earl Percy, M.P., the Earl of Eglmont, the Bishop of Rochester, Messrs. George Lubitt, M.P., Alexander M'Arthur, M.P., W. Grantham, Q.C., M.P., J. Watney, M.P., and Sir Trevor Lawrence, Bart., M.P. The Sanitary Congress is divided into three sections, as follows:—Section 1: Sanitary Science and Preventive Medicine; President, Dr. Alfred Carpenter. Section 2: Engineering and Sanitary Construction; President, Capt. Douglas Galton, F.R.S. Section 3: Meteorology and Geology; President, Mr. J. G. Symonds, F.R.S. Arrangements have also been

made for one or more lectures, one of which will be delivered by Professor Corfield. Croydon has the advantage of excellent public hall accommodation, which will doubtless be utilised for exhibition and meeting purposes; the town is, moreover, very accessible from all parts by rail, and those who know Dr. Carpenter will have the assurance that his energies and capacity for work will leave nothing undone to merit success.

### TO CORRESPONDENTS.

**ARCHÆOLOGICAL.**—We had marked out for reproduction some papers read and some other notes connected with the proceedings of the British Archæological Association at Yarmouth and Norwich, but we have been unable to find sufficient space through pressure of other matters in hand.

**C. E.**—The subject will have attention in due time.

**A WORKMAN.**—The Metropolitan School of Art, Kildare-street.

**PROVINCIAL ARCHITECT.**—We have seen the puff direct in the country paper.

**THE NEW BRIDGE.**—A fitting name was long since suggested, but municipal politicians of a certain kind can only see daylight through their own goggles.

**R. D. S.**—The proper course has been pointed out, and we are glad to hear that other members are of the same opinion as yourself.

**A BUILDER.**—Your statements confirm our own as to the character of the houses erecting in a portion of the north Dublin district.

**RECEIVED.**—J. W. C.—M. D.—R. E.—Clerk of Works (by all means)—F. G. McD.—A Student—Art—A Northern Architect (will have attention)—B. M.—C. Y.—P. P.—M. A.—C. D., &c.

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*Correspondents should send their names and addresses, not necessarily for publication.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.*

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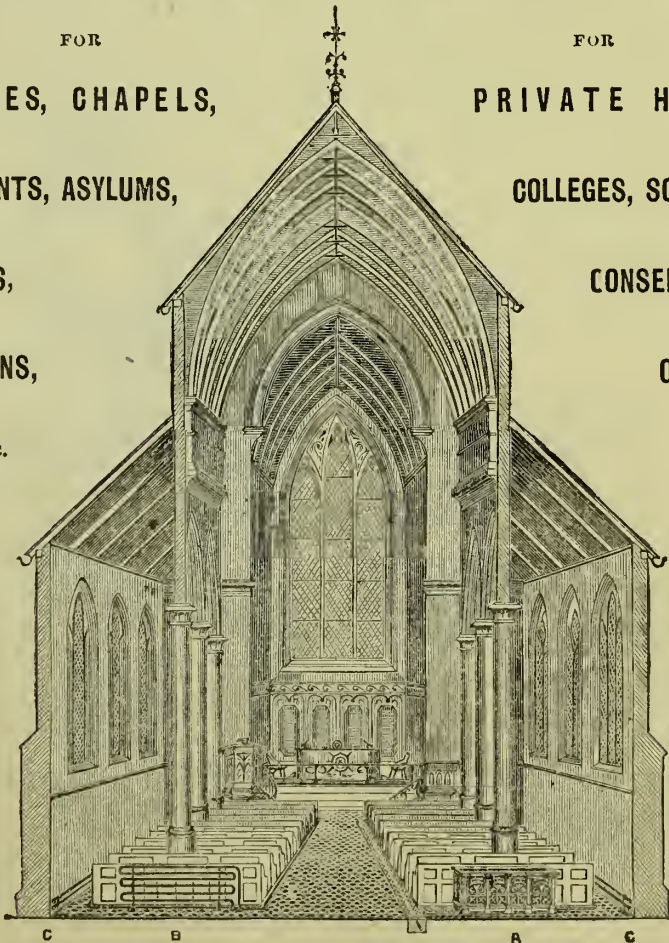
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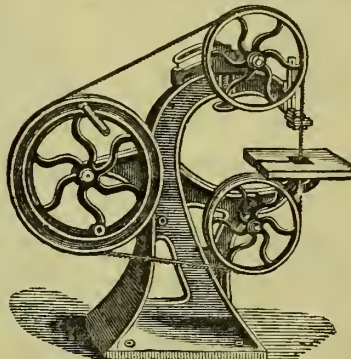
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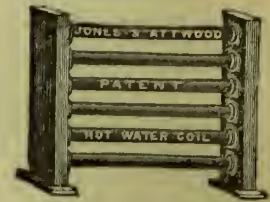
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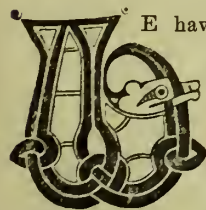
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## THE IRISH BUILDER.

VOL. XXI.—No. 474.

## SANITARY BUILDING REFORM.

THE CORPORATION BUILDING AND  
OTHER BYE-LAWS.

WE have often within recent years felt it necessary to criticise somewhat severely, but always honestly, the action of the Corporation of this city in sanitary and other directions; but, nevertheless, we were at the same time ready to accord the municipal authorities credit for any movement in the right direction calculated to benefit the city.

We have now before us a report of "the Committee of the Whole House" with respect to the cleansing of footways and pavements, the removal of house refuse, the cleansing of earth-closets, privies, ashpits, and cesspools. These "Bye-Laws" of the Public Health (Ireland) Act, 1878, are, as a whole, fairly good, and have long been needed; but that part of the report which most particularly concerns our advocacy is the Bye-Laws in respect to new streets and buildings—the latter especially. Readers of this journal are aware that, in and out of season, we have for a number of years urged the framing and passing of a Building Act for Dublin, with a view to controlling or putting an entire stop to the nefarious building malpractices which are rife in the city and suburban quarters of Dublin.

We are glad that we have been afforded an opportunity for commending the somewhat tardy action of the Corporation, and of bearing testimony to the usefulness of the work

they have now performed. The Bye-Laws in respect to new buildings, and projections in respect to old as well as new, are well calculated to work a most desirable reform; but, as "the proof of the pudding is in the eating," so the proof of the value of these new Bye-Laws will be in their rigid enforcement, when they are confirmed. No time should be lost in having them confirmed and put in force, as delay in this matter is proving most disastrous to the health of the city.

It is yet a moot question whether we shall have an extension of the municipal boundaries, or eventually a Dublin Metropolitan Board of Works, absorbing the nearer suburban townships; but whichever form of metropolitan government may be formulated, there is an absolute necessity for extending the provisions of the Bye-Laws in respect to new buildings to a much wider area than what they now cover. It is immediately outside the municipal boundary and throughout the townships that speculative building has been of late years most rife; and if the suburban speculators and offenders are not reached by the new bye-laws, the reform which can be accomplished will be comparatively small, though still useful so far as it goes.

These new building Bye-Laws, emanating from the Dublin Corporation, are framed to a great extent on the lines of already-existing building acts and bye-laws in force elsewhere and in cities and towns in the sister kingdom. The London Metropolitan Board of Works have building and building amendment acts, but they have recently found it necessary to frame a number of bye-laws or building regulations, which are for some months past awaiting confirmation at the hands of the Home Secretary. Why a delay has occurred in their confirmation we cannot particularly say, though we are aware that determined attempts have been made, and are being made, even by members of the local boards, in the speculating builders' interests, to greatly modify or maim some of the most stringent and sanitary clauses of these bye-laws. As there are vestrymen and local board representatives in the Metropolitan Board in London, so we have representatives of local bodies in the Dublin Corporation, and some of these parties have a direct interest in impeding sanitary and building improvements, through the nature of their avocations and ownership.

On both sides of the city, north and south, there is a large amount of tumble-down and unsanitary house property, very old and uninhabitable, which ought to be cleared off the face of the area it occupies; but there is in some instances a difficulty in carrying out a sweeping measure of improvement, for more reasons than the one generally advanced. The industrial and working classes should not, we know, be dispossessed by wholesale without due provision being made for their housing in new dwellings as near as possible to the site of their former dwellings, or otherwise within a reasonable distance to the centre of their employments. The Artisans' and Labourers' Dwellings Act was intended to provide for the difficulty, but, unfortunately, it has proved a partial failure up till the present, at least in London, owing to speculators in house property taking advantage of the act to serve their personal interests. Largo areas have been cleared all over London, new streets have been constructed, others widened, and enormous

sums as compensation have been paid to landlords and traders for the alleged losses in rent and in the way of business. The London metropolis has been improved at the cost of an immense burden of increased rates, but the very classes that the Artisans' Dwellings Act was intended to benefit have in nowise been benefited. Large blocks of new warehouses and palatial dwellings and offices have been erected and let at high rentals, but no artisans' dwellings have been erected, save a few blocks of so-called industrial dwellings erected by companies and private speculators. The working classes have been swept by wholesale outside the city of London and the immediate suburbs, to be housed in "Jerry" houses, wherein illness and death is more speedy and certain even than in their former old quarters in the city's back streets and courts. It is a strange irony that some or many of the very folk who were actively engaged in furthering improvements in the city, under the pretence that the working classes would be benefited, were the same parties who were personally interested in drawing a large compensation for their own house property in the city and that of their friends, while, on the other hand, they had a hand in projecting and building "Jerry" dwellings in the suburbs to meet the wants of the hundreds of those who were driven from the city. Now we desire, as far as possible, to prevent a repetition of London practice in Dublin, for we are aware that there are not a few owners of old property in this city who can talk and are talking very glibly of city improvements, while "working the oracle" in their own interest in a double and triple direction. Members of our public bodies in Dublin have been known within recent years to have speculated largely in purchasing old property in districts marked out for street improvement. These are business men, to be sure, and it is a matter of business with them to take advantage of the rising market, buy in the cheapest and sell in the best market, and at the most favourable opportunity. Some of these men, too, have become directors of artisans' dwellings companies, and we do not deny their right to do so if it suits their respective interests. Let us not, however, hear of any humbugging nonsense talked of philanthropic movements, where the commercial principle is the leading one. We would also give a caution to honest-minded and independent municipal representatives to keep their eyes open in the meantime, and, above all, we would warn the citizens and ratepayers to be on their guard.

It will be found in Dublin, when operations are about to be commenced in clearing any of the areas marked out for improvement, that certain house property will be made to acquire a fictitious value, and a compensation entirely and outrageously out of proportion with its worth will be demanded. Claimants and counter-claimants will be plentiful, and landlords and house owners who never laid out a pound for the sanitary improvement of their houses and premises, and who even purposely neglected paying their rates, will be among the more rapacious of the claimants for a high compensation for their loss. Now it ought to be established as a maxim or unerring rule, that the house owner who has for years kept his property in a dilapidated and disgracefully unsanitary condition should not have his claims for any fancy amount for a moment listened to. Houses that stand



condemned for their very appearance should command no more than a mere nominal amount to cover their owners' loss. Had the Sanitary and Public Health Acts been enforced, the owners of such houses would be compelled to improve them, and keep them in a sanitary state; failing to do this, the local authority was empowered to remove them as uninhabitable and as nuisances. It will be found that among the more rapacious claimants for compensation for alleged loss of position and business will be publicans, petty grocers and beer-sellers; and a large number of the owners of such premises in the old quarters of the city hold property in a very ruinous and unsanitary state, apart from the external show of the shop and the gewgaw imposition of shop-front architecture. There are exceptions, to be sure, where there are newly-built public houses and other offices; but many of our old streets need not be walked to discover a number of run-up fronts, exhibiting a genteel face, but a thorough corrupt soul and body, so far as the interior goes.

We have known in this and the sister kingdom house-owners and shopkeepers, within a few months of an improvement being commenced in certain localities, to expend a very moderate sum in putting in a new front, or wiggling down or coating with "compo." an old one. All this was done with a view of enhancing the anticipated compensation. The plunder of public moneys seems to be fair game for a very large number of unscrupulous traders and speculators, and it is well that a hint should be thrown out in time that the independent members of our public and local bodies and arbitrators may be sensibly alive to the condition of matters when they are called upon to make their awards. Good house property, and a valuable and long-established business, is entitled to fair consideration, but very little good house property exists in some of the old quarters which it is intended to improve.

Let it be remembered, also, that public men will be found mixing themselves up actively in measures of public improvement, whose private and public duties are in direct antagonism, and who will naturally serve their own interests first. Such men—whether they are directors of public companies who will benefit, or owners of large property—as individuals, feelings of honour and honesty should urge them to take no active share in improvements in which they have a direct interest. Indeed such men should be openly called upon to withdraw, and leave to other men the task of doing what they are, from the nature of their position, unfitted to do.

Our text, through its suggestiveness, has led us to touch upon some of the surroundings of the subject, instead of dilating upon its *per se*; and, in consequence, we have not left ourselves space to enter at length upon some or several of the principal points of the Bye-Laws of the Corporation in respect to new buildings. We have, however, glanced through these Bye-Laws and marked some passages that called for notice, though they are but modifications of other similar Bye-Laws, designed to effect a similar object—more perfect sanitary supervision and building construction. In reference to foundations, conditions of site, mortar, strength or thickness of walls according to altitude of storeys, access to stairs, party walls, water closets, ash-pits, flues, gutters, ventilation, drains, cisterns, water supply, fire-proof

materials, projections, arches, and other sundry and cognate matters, there are a number of very servicable Bye-Laws, which we sincerely hope will be enforced without fear or favour, no matter who the offender may be.

As to the height of habitable rooms, the rules appear to us to be open to improvement. Seven feet in height from the floor to the ceiling in a habitable room, even if it were in the top storey, is too low. The first rule (No. 71) says that every room hereafter constructed shall be in every part at least 7 ft. in height; and the second rule, "Every habitable room hereafter constructed in the roof of every building shall be at least 7 ft. in height from the floor to the ceiling throughout, not less than *one-half* the area of such room." In respect to rooms in roofs there is perhaps less reason to complain, but in regard to rooms in other parts of a dwelling the least height allowed should be 8 ft., even for small bed-rooms, and considerably more of course for the principal rooms of the dwelling. The basement storeys of most of our suburban houses in Dublin have their ceilings quite too low, but speculative builders are always sure to go in for a saving of materials, which to them is a saving in cost of time and labour as well. The fault often lies with our architects who design houses, as well as speculating builders, who build to a stereotyped plan. A basement or kitchen storey with only 7 ft. between the floor and the ceiling is not a sanitariously constructed basement storey, and, according to circumstances often arising, it may prove a very unhealthy basement, particularly when it is foully perfumed with a combination of odours and gases, cooking smells, and smells from drains and water-closets. Kitchens, too, are often in Dublin converted into bed-rooms for the cook or thorough servant (the maid of all work), and a settle bed, press bed, or other sleeping accommodation is too often to be seen not only in the kitchens of our middle classes, but others who rank themselves among the gentry of our cities and towns. There are several other points in these Bye-Laws which suggest comment, but we must draw our remarks to a conclusion for the present. Before doing so we must say that the Bye-Laws, though good in the main, have sundry defects which we would like to see remedied, and they would be the better of a careful revision before they are confirmed. Some of the Bye-Laws could well be incorporated with others, and their number lessened, and in different places there is a confusion of terms and meaning, which would lead to mistakes in administration. In one part, for instance, we have the "clerk to the sanitary authority," and in another the "town clerk to the sanitary authority." Again, we have "building surveyor" and "city architect," and *vice versa* again and again reported, though the same individual was, we suppose, intended in both cases. Improvements have, however, we see, been made since the Bye-Laws were first drafted, but they are susceptible of several more, which we trust will be made before they are finally confirmed. Once more we repeat that the Corporation are entitled to credit as far as they have proceeded in the matter of these bye-laws, but their value will lie in their rigid enforcement.

We may shortly again return to the discussion of other bearings of the subject.

## SIR JAMES WARE AND ST. WERBURGH'S CHURCH.

WITHIN the present month a correspondence has cropped up in the daily Press relative to the burial-place of Sir James Ware, a once distinguished antiquary and historical writer, to whom this country owes much. We thought that it was long since generally known that Sir James Ware was born in, died in Dublin, his native city, and was buried in St. Werburgh's; but it seems that there are many still ignorant of the fact. The worthy Auditor-General, who succeeded his father in the same office, though long a resident in Dublin, was forced by circumstances to leave the country through civil disturbances. At the outbreak of the Rebellion of 1641, he left here for England upon a mission to Charles I. at Oxford. He was taken prisoner on his return voyage, and sent to the Tower of London by Parliament. A few months afterwards, on his release, he came to Dublin, but left again for France in 1649; and at the Restoration he received back his former offices. His "*Antiquities of Ireland*" is pretty well known by students of Irish history, and also his other literary works in relation to Irish bishops and writers. The edition of Ware, by Walter Harris, in the last century, made more fully known the labours of our eminent literary antiquary. In reference to the burial-ground of St. Werburgh's one correspondent (the Rev. J. H. McMahon) writes:—

As public attention has been recently directed to St. Werburgh's burial ground and vaults, your readers may be reminded that some persons of note repose in these receptacles of the dead—a fact probably unknown to the outside world, or even casual visitors of this interesting old church and locality. In the vaults underneath the church are laid, for instance, the remains of the famous Irish historian and antiquarian, Sir James Ware, as well as those of the ill-fated Lord Edward Fitzgerald. When I was conversant with St. Werburgh's parish, both of these sepulchral chambers were more or less in a neglected condition; while Ware's tomb, with its huge, thick, iron bars entirely corroded with rust, might be described as crumbling piecemeal into ruin. Now that the parish cemetery, after being closed, will likely undergo repairs, I venture respectfully to suggest that Sir James Ware's vault should be restored and supplied with a handsome suitable inscription and a metal grating; and the very excellent and widely-esteemed rector of the united parishes, Canon Greene, should set on foot a subscription for erecting a mural tablet in St. Werburgh's Church, stating that Sir James Ware's body is laid in the vault underneath. The requisite funds would, in all likelihood, soon be contributed by those who are far more qualified than I am to pronounce upon Ware's vast merits as a reliable writer of Irish history, and as a real credit to Ireland, and to Dublin, his native city. The proverb of the Middle Ages—"Hibernia incuriosa suorum"—is quite as true in the 19th as in the previous centuries. Witness the almost nameless slab which so long covered the honoured remains of Archbishop King, great in metaphysics, ecclesiastical government history, and statesmanship. Doubts have been expressed as to whether either Ware or Lord Edward is really buried in St. Werburgh's vaults. A former sexton, Patrick Flanagan, a true son of the soil, told me that he walked in the procession from Kilmainham which conveyed Lord Edward's corpse, and saw it deposited by torchlight, where it is now in its last resting place. No such evidence is forthcoming in Ware's case, though I know of nothing that disproves his interment in St. Werburgh's, but the present is a favourable opportunity for investigating a point full of attraction for archaeological scholars.

Another correspondent (the Rev. W. T. King) thus writes in reference to the condition of the vaults of St. Werburgh's, and what he saw and heard on the occasion of his visit:—

Knowing St. Werburgh's to be one of the most ancient of the churches of this city, and being desirous of seeing what it possessed of architectural or antiquarian interest, I paid a visit there (September 2nd). Having been shown the interior, which I found modern and uninteresting



(the church having been rebuilt in the last century), I asked if I might be allowed to see the vaults. The sextoness procured a light and we descended. She did not appear to know anything about the tomb of Sir James Ware, but, having shown me some others that were of no interest, brought me to the vault in which lie the remains of the unfortunate Lord Edward Fitzgerald. It appears that these were carefully re-coffined about three years ago. The coffin bears a brass plate, stating the name and dates of birth and death. In the same vault, however, I was pained to see that the old rotting coffin had been made a receptacle for portions of human remains which, according to the statement of my guide, were those of the mother of Lord Edward Fitzgerald. The rotten coffin is kept for the purpose, I was informed, of being carried away piecemeal by visitors. A charge was made of 1s. 6d., for the benefit, as I was told, of the church; but surely whatever sum is thus obtained would be better devoted to maintaining some semblance of that decency which ought to attend the last resting place of those who, as their bodies lie under the pavement of a Christian church, may be presumed to have received Christian burial.

A third correspondent (W. R., M.R.I.A.) thus cites indisputable proof of the death and burial of Sir James Ware:—

The funeral entries in Ulster's Office, Dublin Castle, vol. xiv., p. 77, supply the evidence as to Sir James Ware's burial in St. Werburgh's:—"Sir James Ware, Knight, departed this mortal life the 27th day of November, and was buried the third day of December then following in St. Werburgh's Church in Dublin, anno, 1666." The proposed tablet would form a most desirable record of this most eminent scholar and learned and profound antiquary.

The distinguished antiquary was born in Castle-street in 1594, and in the same street other celebrated Irishmen in various walks were also born. Not only a memorial tablet should be erected to the memory of Sir James Ware, but a more fitting and lasting public monument, for his labours in the fields of Irish history were most valuable; and had he not performed the work he undertook the loss would have been great, for no such opportunity as presented itself then to the antiquary could have occurred again. Though Sir James Ware availed himself of the assistance of other native antiquaries and chroniclers, yet he worked most industriously and laboriously himself. The defects in his works can be well overlooked when we consider the magnitude of his toil, and the difficulties that beset his work in his time. The history of St. Werburgh's Church, to tell it from the beginning, would be a very interesting and instructive one, but we do not purpose to enter at length upon it here. There are several local histories or compilations in which particulars, more or less correct, about St. Werburgh's may be found.

The present St. Werburgh's Church is on an old site, and it formerly had a handsome spire. Previous churches were twice burned down and re-built, the last re-building being in 1759. In Malton's "Views of Dublin," the spire of St. Werburgh's can be seen overtopping the Castle buildings, which forms one of the illustrations of that work. The spire had originally a cross, and afterwards a gilt ball was substituted, and it was supported by eight rusticated pillars with intervals between. Owing to some defects in the construction, and, perhaps, in the materials too, many years had not elapsed before the spire was observed to be considerably out of perpendicular. The inhabitants in the immediate neighbourhood got alarmed as time wore on, and the overhanging of the spire appeared to be greater, and called upon the authorities to take it down. Notwithstanding, Francis Johnston, the architect, undertook to secure the spire and render it perfectly safe, the inhabitants would not consent, so the handsome spire was taken down in 1810, and the city, in consequence, lost one of its architectural features. In the commencement of the present century there was a paucity of towering spires in Dublin, and the city could ill afford the loss of that of St. Werburgh's. The vaults of St. Werburgh's contain the remains of several other noted celebrities besides those of Sir James Ware and Lord Edward Fitzgerald. In several books, guides, and pictures of Dublin,

within the present century, it has been over and over asserted that there were no monuments erected in St. Werburgh's to the memory of either Sir James Ware or Lord Edward Fitzgerald. We regret to hear that the condition of the tombs of the antiquary and the patriot are in such a melancholy condition, and we are equally pained to hear that such practices exist as has been stated by the writers whose correspondence we have given above.

*En passant* we would observe that there is a great want, which we hope may one day be supplied—the need of good parochial histories of the principal parishes of note in Dublin. Plenty of material is available, and a diligent student and worker, if he once set himself the task, would be surprised at the amount of his collections in relation to any of the old parishes and parish churches in the city, and those chiefly on the south side. The cathedrals have found good historians, and St. Patrick's Cathedral at least, in the volume of Mason, possesses a valuable record. St. Werburgh's and St. Bride's would jointly supply a splendid subject or subjects, for celebrated names connected with the former had often connections or associations with the latter. On the north side of the Liffey there are not any very old churches existing, save St. Michan's, in Church-street. St. Mary's Abbey as a visible building has vanished, but materials for its history are available. St. Michan's Church and the parish of St. Michan, with Oxmantown as its old environs, would afford a good field for research, and supply ample historic materials for a most interesting and instructive parochial history. What the Rev. Beaver Blacker achieved for the parishes of Booterstown and Blackrock, some other literary churchman or layman or union could do for St. Werburgh's or St. Bride's, or other of our old historic city churches.

Many of our present-day citizens are ignorant of the history of their city; indeed we have known men who considered themselves well informed, who knew next to nothing of the important events that took place in their parish even in modern days, or of the celebrated characters that lived and died there. Strangers can often tell an inhabitant more about the memorials of his native parish than the parishioner himself, who lived almost a whole lifetime under the very shadow of his own parish church, and in whose graveyard mayhap the remains of seven generations of his family sleep. It is the bounden duty of the living to respect the memory of the illustrious dead. Time, that levels all distinctions, wipes out past feuds, political and religious, and brings men, irrespective of sect or party, together, who can join heads and hands in honouring those who served their country and their kind to the best of their ability. There are voices from the vaults of St. Werburgh's calling out to us in spirit if not in flesh. They live, these men, in the page of history, and that their memory may be impressed for aye on the public heart and mind, let us honour them as great minds have always been honoured in ancient and modern times. If public spirit manifests itself, art will soon accomplish the rest.

#### CLONTARF.

WE are pleased to learn that a local committee of gentlemen have taken up the matter of a suitable bathing place for this rapidly-increasing and improving township, and have no doubt that such a project will be largely availed of. More than one preliminary meeting has been held, and we hope to be shortly in a position to report progress as to the formation of a company. Clontarf, unfortunately, contains at least one obstructive in its population, who has on more occasions than we care to mention stood in the way of improvements, and we will watch with some anxiety the present movement till it has attained to a safe state of growth. So far as professional advice is concerned, the matter is in safe hands.

#### THE MIDLAND GREAT WESTERN RAILWAY.

As upon several English railway lines there has been a considerable falling off during the last twelvemonth in all classes and descriptions of traffic, so has there been a proportionate falling off on the Irish lines. Without going into minute details, the decrease in the total receipts for the last half-year amounted to no less than £84,635. Shareholders, consequently, have to feel content if they can with a reduced dividend, and hope that a better one will soon be forthcoming. The chairman's statement at the half-yearly meeting, held on the 4th inst., was not a cheering one, and no wonder need be experienced that it led to a proposition on the part of the shareholders to reduce the expenditure by reducing the number of directors from seven to three, at a salary of £300, and that the salary of officers who receive £300 should be reduced 10 per cent. in their present salary until the company was able to pay 5 per cent. to the shareholders. This proposition found no second, and of course fell to the ground. Nevertheless, there is need for economy in the working of the line during the present depression of trade. The farming interests have suffered, and so have others, and excursionists have not been numerous on any of the railway lines.

Some railway directors are worth their salaries, for they earn it by their practical advice and organising powers; but others on several of our lines are little better than ornamental men, without having the usefulness of some ornaments. If seven directors received the salary of £1,275 for the half-year, we hope that they have performed useful work, and thereby earned what they have been paid. We are not among those who would sacrifice efficiency to economy in the working of a company, but during a continued depression we would certainly advocate a proportionate reduction all round from the top to the bottom—from directors to the lowest official. It would be unfair to reduce the wages of workmen and leave the recipients of large salaries untouched.

We find from the statement of the chairman that the men who worked in the shops were timed to 54 hours per week, but that others of the locomotive men on the line worked longer hours. Some shareholders complained that the workmen were receiving too high wages for the hours they worked, but other Irish railway lines are paying the same rate. The chairman of the Midland said he would be glad that the men worked 64 hours, and they would be paid proportionately.

We cite a passage from the chairman's statement in reference to improvements made at the Broadstone Terminus, although we not long since furnished particulars of the works in course of completion there:—"One gentleman writes to me to know the cost and advantages of this approach to the terminus. I may tell you, to begin with, that this approach was not commenced in the present depressed times. It was the result of an act of Parliament obtained a few years ago. The entire sum it has cost will be covered by something under £6,000. Taking that at the value of money, what we are paying for it, 4 per cent., it would be about £240 a-year. For that we have got rid of the pontoon bridge that was here—an expensive oak bridge—most inconvenient, and one that required supervision and care day and night. We have filled up the dock that was opposite here, and something had to be done because the sanitary officers, who seemed now to be very vigilant, complained of the effluvia from the place in hot weather. We have got now a space of ground for sidings, and we have the canal stores for timber stores, so that we can keep the carriage timber in them instead of lying out in the wet. We have got now an easy approach to the terminus, of which I am sure all the passengers travelling up and down will see the advantage. We have endeavoured to make the station one of the



handsomest in the country, and creditable to this company. I do not think the gentleman who wrote will be dissatisfied at the steps we have taken to carry this work out. Of course the sum I mentioned includes the finishing of the street. We have endeavoured to suspend every capital work we could, and with the exception of finishing this road and some work at the Athlone station, I know of no such work we are carrying on, and we will not do so unless driven to it by some authority."

### HISTORICAL MANUSCRIPTS.

THE Seventh Report of the Royal Commission on Historical Manuscripts contains a large mass of interesting matter. The collection of the Marquis of Ormond, reported upon by Mr. J. T. Gilbert, comprises a large number of letters and documents relating to a variety of national and state matters, and transactions in which many important personages figure, in Ireland, England, and abroad throughout the seventeenth century, or from 1680 till the beginning of the last century. We have light thrown on the personal intercourse of Charles II. and James II. with the Duke of Ormond and his son; and we have front and side lights of the political movements in Ireland, of Catholics, Presbyterians, and their opponents; the condition of the native Irish, plots and counter-plots, proclamations, outlawing, and punishments. We have glimpses, too, of civil and military administration in Ireland during the time of the second Duke of Ormond, and his favours and services under William III., Mary, and Anne. In Mr. Gilbert's valuable report much more will be found than we can particularise, concerning the House of Ormond and its relations with many eminent personages, churchmen and laymen,—John Fell, Bishop of Oxford; John Tillotson, who was offered a see in Ireland; John Evelyn, Matthew Prior, John Dryden, Sir Richard Steele, and Jonathan Swift. The latter received the Deanery of St. Patrick from the second Duke of Ormond. The present portion of Mr. Gilbert's work is a continuation of the Ormond letters and papers described by him in the Sixth Report of the Commission.

These reports will be most valuable material for the future historian of Ireland, for they afford a fuller insight to the past movements, political and religious, in the country, and their springs of action. In the present report will be found some facts concerning the "Irish Rogues and Rapparees," and of the celebrated Redmond O'Hanlon. Among a number of interesting letters and documents, there is a memorandum on the progress of the fine arts in Great Britain between Ormond and the Earl of Longford. The account of Ormond's last days is very interesting and suggestive; but opportunity may again occur to us for referring at greater length to Mr. Gilbert's valuable report.

### THE CITY AND THE TOWNSHIPS.

#### THE MUNICIPAL BOUNDARIES COMMISSION.

FROM a statement made by the clerk of Rathmines Township, at an inquiry held at the Town Hall by Mr. W. A. Exham, Q.C., one of the Municipal Boundary Commissioners, it appeared that the area of Rathmines and Rathgar was 1,470 acres, the valuation £97,882, and the population over 23,000. The rates in 1874 were—Municipal 2s. and poor law 1s. 4d.; 1875, 2s. and 1s.; 1876, 2s. and 1s. 2d.; 1877, 2s. 4d. and 1s. 2d.; and 1878, 2s. 4d. and 1s. 4d. The commissioners were quite satisfied with the present division of wards. There were 18 commissioners for Rathmines and 3 for Rathgar. The electoral division of Rathmines included all the township, except Sallymount, which was in Donnybrook. The commissioners had no special wish to bring in Terenure; it was in another electoral division and barony.

He did not think the Town Commissioners would like to undertake the management of the Rathfarnham electoral division, which was principally agricultural land. The Rathmines Commissioners supplied water to 15 houses in Terenure, and there were continual applications to them for water.

The Commissioner put the question, supposing the Rathfarnham district was to be brought into the Rathmines Township, paying the same road rate and the same county at large charges, and that the Rathmines Commissioners were not bound to give them light or water until they found it expedient themselves, would it be so objectionable that the Rathmines Commissioners would not like it? To this it was replied by the Town Clerk (Mr. Evans), that he did not say that it would be objectionable, but the board did not like it. It was a district as large again as Rathmines, and the principle of the Rathmines Commissioners was to give their whole attention to the district under them.

It was evident from the spirit displayed by the Rathmines Commissioners that they did not want to have any association with any district but their own, and they are still opposed, as they have always been, to be municipalised. The question is, we fear, not entirely ripe yet for the extension of the city's boundary by amalgamating or absorbing the nearer townships. As regards the formation of a Dublin Metropolitan Board of Works, much could be said in its favour, and, considering the present circumstances, much against it. Whenever a Metropolitan Board for Dublin is possible, there is no need of it absorbing the Corporation, for both could exist side by side, as in the case of London. In the matter of wealth and house property of enormous value, London, however, stands on a different footing to Dublin. The Corporation of London have a prodigious income from various sources, but the Corporation of Dublin in comparison a rather small and limited one. The city of London has been greatly improved, and improvements are continually proceeding, while in Dublin little is being done, and house property in various localities north and south is yearly going down in value. Were a Metropolitan Board to be established for Dublin it would absorb several rich and improving townships, leaving the Corporation in a rather unenviable position, and beset as time advanced with great difficulties, financial and otherwise, which nothing short of a greatly improved municipal organisation and hard labour for years could overcome. Of course it is generally known why the Corporation of Dublin would like to extend the city boundaries. From its own point of view the reasons are cogent, and they are strictly of a financial character. As at present constituted we do not hesitate to say that the Corporation could perform more useful work, even though its income is limited, but we are adverse to recommending such a sweeping change abruptly for Dublin as the formation of a Metropolitan Board of Works. Continued neglect on the part of the municipal authorities would be the one thing that would warrant us in urging the sweeping reform, such as is contemplated by some parties who have no practical knowledge of the position of London, and that very huge area outside the city under the jurisdiction of the Metropolitan Board of Works. The various vestries and district boards of works in the outlying districts of London send representatives to the Metropolitan Board, generally two, these members representing on the central board the interests of their respective board, parish, or district. The improvements projected and carried out are paid for by the whole of the districts, and the burden has of late grown very heavy indeed on the ratepayers.

The Metropolitan Board of London have projected many schemes that they have failed to carry out, though thousands of pounds have been expended in preliminary expenses and law costs. Indeed the London Board has more than once shown a great recklessness in expending the public moneys; the recent project of a new water supply and

scheme for buying up the London Water Companies being one. So heavy was the outlay in promoting the water-supply scheme that the Metropolitan Board had to go to Parliament last session for an Indemnity Bill, the auditor having surcharged the Board for neglecting to obtain sanction before proceeding in a certain manner duly provided for. The several thousands were expended and lost to the ratepayers, but not to the lawyers and other folk who profited well by the abortive scheme. There are big jobs to be anticipated in connection with metropolitan boards, as well as corporations, and in a board that commands and votes millions of money in a very short space of time, jobbery and reckless expenditure will crop up, if the honest representatives are outnumbered by the unprincipled, and when the latter and the salaried officials are thoroughly in accord. The Metropolitan Board of London have indeed carried out some large improvements, and one of the best was the main drainage, which, after several years' trial, it is now found necessary to supplement by additional drainage works to relieve certain outfall sewers, and provide for floodings and storm-waters. But enough—a knowledge of the history and the means and ways of the Metropolitan Board of London would undeceive many folk in Dublin, who think that a Metropolitan Board in Dublin could be readily organised, and made to work salvation to the many. Certain we are that it would work salvation to some expectants. It would doubtless make plenty of work for itself in a short time, and, by promoting certain acts like other public boards, would soon be enabled to raise the moneys it required. With an energetic and improving Corporation, we think that the city could get on pretty well for some years to come without any absorption of the townships, either on the part of the Corporation or in the event of a Metropolitan Board of Works. We do not mean to say that under any circumstances a change in the government of Dublin would not be necessary. As time advances the question will arise whether it will not be advisable for the Corporation to absorb something more, encroaching on the townships, and rendering it expedient for some of them to amalgamate. There are arcas and materials, however, in the city that can be worked upon and developed with advantage to the Corporation and the citizens.

### THE ROYAL COLLEGE OF SCIENCE.

THE committee appointed at a public meeting in May last, have issued a report of their labours so far. They had seven petitions presented to Parliament during the past session, and have urged upon Government the necessity for inquiry and reform as to the affairs of the college. The Government have promised that the institution will be visited during the recess by the Vice-President of the Council, Lord George Hamilton; pending the result of which and of an action at law by Prof. Galloway, the committee have suspended their labours.

THREAD FROM WOOD.—A new wood industry, the manufacturing of thread for crochet and sewing purposes, has recently been started at the Åby cotton mill, near the town of Norrköping, in the middle of Sweden. The manufacture has arrived at such a state of perfection that it can produce, at a much lower price, thread of as fine quality as "Clarke's," and has from this circumstance been called thread "à la Clarke." It is wound in balls by machinery, either by hand or steam, which, together with the labelling, takes one minute twelve seconds, and the balls are packed up in cardboard boxes, generally ten in a box. Plenty of orders from all parts of Sweden have already come in, but as the works are not yet in proper order, there has hardly been time to effect them all. The production gives fair promise of success, and is expected to be very important for home consumption.—*Timber Trades Journal.*



## SUGGESTIONS FOR YOUNG BUILDERS.

## PART III.

(Continued from page 270.)

HITHERTO the measurements in common use in Ireland and the British Islands have been taken in feet and inches, excepting in the case of land surveying, in which Gunter's ingenious attempt to reconcile the duodecimal with a decimal scale has won its way and prevailed, the Ordnance Survey proving a great advocate. Every practitioner should early endeavour to possess a standard rule. Ivory, although not the best, is, perhaps, most convenient. These are now made in various lengths, having fiducial (*i.e.*, reliable) or feathered edges on the inner sides, on which are engraved a series of plotting scales. The most useful of these that we have seen is a metre in length (that is 39·3704 English inches), and, hinged to fold in four, is not inconvenient for the pocket. The use of French measurement, of which the unit of length is the metre, is becoming daily more general with us; and every young man should keep in his head the numbers 3937, which are sufficient for mental approximation, or the number 3; thus a metre is 3 feet 3 inches and 3-eighths of an inch, which, although not so correct as the decimal number, comes within the thickness of a sheet of paper of the tenth!—the difference being as between 393704 and 393750. As the use of the French measure is legal in these kingdoms, and will in all probability soon supersede the very uncertain native standard, we should make ourselves acquainted with it. We know not what a yard is, but the French metre has a something tangible to rest on, called the "Toise of Peru," which at 13° Réaumur is one ten-millionth part of the distance from the equator to the poles! The old French foot was 8-tenths of an inch longer than the English, and led to some curious disputes, and much betting at a time when differences of measures were not so well known as now. Southwark Bridge, in London, was to have its arches of the same span as a bridge in Paris, and was constructed in accordance with the notes taken by French rules; but, when completed, the span of the arches was found to be considerably less than intended by the designer. The Russian foot is the only one we know of that is the same—*cateris paribus*—as the British. It was a custom in some trades to divide the inch into twelve lines, from which we find printing types formerly denominated, as for instance "two-line English," or "two-line brevier"; but this rule has not held good for many years, and each type-founder has his own standard and trade marks and numbers. The old French foot was divided into 144 lines. Any one curious as to measures of length in Germany will find much information in Dr. Julius Weisbach's book, "Der Ingenieur."

In every trade, profession, and calling, there are certain conventionalities inconvenient to dispense with, at the same time that they are of little use, their value, if they ever had any, being long lost sight of; thus the lawyer continues to preface his leases and deeds with the words "this indenture," although not one in ten thousand knows what they mean, and the architect is satisfied in shewing in a certain manner the position of a door, window, or fire-place. Whilst walking in the path that custom exacts, the young draughtsman should not be satisfied till he has made himself thoroughly acquainted with the way in which the various trades interpret those conventional signs (which are a sort of shorthand writing to the profession), and drawn a plan in longhand. This can only be done by a careful study and accurate measurement of the finished works of the different trades; but the study is an easy and a homely one: examples abound on every side. He has but to measure and plot the house he lives in, making plans or horizontal sections of every storey, with an occasional vertical section, laying all down to a scale of, say, 4 feet to the inch, and the details of the

framing and construction of doors, windows, roofs, cornices, and everything he can get at, to quarter full size. He will be surprised at the amusing amount of information he will thus acquire, and the fund of useful examples he will lay up for himself. He should write on every portion of his work the names or terms by which it is known, and endeavour to assimilate the workshop technicalities to roots in Greek, Latin, and Italian, that his education may enable him to bring into use. He will occasionally find in such words as *astragal* and *ambajure*, that the desire of using a big word causes the pedantic workman to overstep his tether, as for instance, in using a word derived from *Astragalos*—a joint of the back-bone, or a bone in the heel, for a sash bar! *Ambajure* is the workshop way of pronouncing embrasure, and is indifferently applied to any opening, in masonry, whether it have an interior widening or a splayed or square reveal.

There are two instruments which come largely into use in surveyors' offices whether land or marine: they are the pentagraph and station pointers—the first an invention for enlarging or reducing drawings, the other for the plotting of angles and points principally of soundings obtained from intersections. In the enlarging of maps for the Encumbered Estates Court in Ireland some years ago there was a great demand for pentagraphs, and the author had much practice in their use, and there is one point to which he would call the young draughtsman's attention, *viz.*, to place his fulcrum always as near to the centre of the instrument as possible. In any illustrations of it that he has ever met with, the weight is shown attached to one of the longer limbs; this might not matter if reducing, but in enlarging there is a very sensible difference from vibration. As the generality, if not all, of the instrument makers engrave the proportional scales on the limbs, with reference to the weight being on the longer, it will at once be found that with the fulcrum on one of the shorter or inner bars, these scales will need modification; but in the use the author had for the instrument he always found the proportion he required, and marked it with a soft pencil so as not to scratch the brass.

The Ordnance Survey of Ireland is on a scale of 53½ perches to the inch, and a very old-established scale with land surveyors is 20 perches to the inch. Sometimes, but seldom, they use 16, so that the proportions he most frequently required were as 1 to 23, or, occasionally, as 1 to 34—scales not on the instrument, but easily arrived at. A steel rule with a few curves on one side is very requisite to steady the tracing point, and in all instances before commencing work a line should be stretched over the three centres, *i.e.*, the pencil, fulcrum, and tracer, to test that the pentagraph is in adjustment. There is a rectangular form not so common, but much to be preferred to the alpha shape; it requires no weight, is made of brass tube, and works on or is principally supported by its fulcrum, which is a point that rests in a brass button with minute steel pins to prevent its slipping, and an ivory wheel which is interchangeable. This form of instrument requires no cord to raise the pencil. With whichever shape the enlargement is made a correction is necessary for the vibration, so that it is better in the first instance that it be made on thin paper, and, when corrected, transferred by means of a hard pencil or steel point, and the transfer paper (described in our first part) to the drawing paper; the point of a knitting needle in a needle holder or pricker answers very well for a tracer. In making the correction a proportional compass will be found very useful, and should be English, and by a respectable maker. We prefer those with a steel bar and tangent screw, either for setting the sliding centre or occasionally bringing the points to greater accuracy of measurement. The station pointers are made of various sizes. We have used them of five and of seven inches diameter, but have seen them much larger, and with lancewood limbs;

they are indispensably necessary in marine surveys; the better sorts have verniers with clamping and slow-motion screws.

Weights are very useful accessories to the draughtsman. We use two descriptions, one of cast iron in cubes 3 by 1½ by 1 inches; they do not soil the paper, but may be covered with chamois leather, which increases their holding power: they are cleaner and easier kept clean without; the others are of lead standing on a base of mahogany an eighth of an inch in thickness, the lead being 2 by 1 inch and 1½-inch high; they are sufficiently heavy, and take up little room on a plan; a few slips of 7 or 8 lb. sheet lead are very useful for many purposes.

We must not here forget an instrument called an eidograph, which we have frequently heard described as superior to the pentagraph, but, as we have no personal knowledge of its use, we can merely mention it. It will be found generally described in treatises on mathematical instruments. It is only when there is a large quantity of work to be done that these instruments become valuable; the quick-handed and practical draughtsman will rather enlarge or reduce a drawing by a few lines, angles, or proportional squares, than go to the trouble of setting up an instrument. One or two parallel lines with a few angles and a proportional compass frequently serve the purpose of enlarging a small survey; of course, if the field-book is available, the better way is to plot the work to the increased scale. One method that we have often used, and which we think simple, is to describe a circle either within or without the plot to be copied, then draw a circle on the plain paper proportionally larger or smaller as the case may be, or as you require your copy; through each of these from the centre draw lines of similar angles, and with the proportional compass lay off the portions where the fences cross. This should be sufficient with a quick eye for ensuring a correct copy; for, let the reader bear in mind that copies are only approximations to the original plottings, and that even they are secondary to the field-book.

It is traditionally stated that the Down Survey of Ireland was the first *laid down* (that is plotted) survey attempted, and from it the title of Lansdowne is derived. Be that as it may, we have frequently seen the quantities of land for leases given from field-books of surveys made by clever men who had no idea of plotting their survey, and to which such a plot (if made for them) would appear as a picture. The Ordnance Survey of Ireland had every parish laid down in what was technically called a content plot, accompanied by a register of all the triangles contained within or embracing each townland; the contents of every triangle calculated by the aid of Babbage's logarithms, with all the offsets on the outer lines, were the means by which the true content was arrived at, computation from the paper being a mere secondary check, everything being reduced to *trig.* as it was called, *i.e.*, the measured lines being reduced to the true and calculated trigonometrical measurements. Computations from paper can never compete with measurement, especially where there is a trigonometrical survey to check the length and determine what it should be, as of course the measured length must be longer than the calculated.

It may be argued from the title of this paper that the writer has strayed out of the record, and that young builders have nothing to do with pentagraphs, computations, Down surveys, &c. To this we reply, when five and thirty years ago a royal commission was ordered for a tithe commutation survey of England, young gentlemen went from the offices of Montgomery of Donegal, Vaughan of Meath, Frazer of Down, Bald of Mayo, and a host of other old (grand old) practitioners, not forgetting many from the Dublin offices, who were so well indoctrinated in their professional duties, whether as young builders (*i.e.*, architects), or land, or sea, or building surveyors, that no work came amiss to them; and the largest parish in England was surveyed by a young architect, the son



of an engraver at Essex Bridge, a schoolboy and child playmate of the writer's,\* and who served his time to Stitt, of the then new Abbey-street. In making these suggestions the writer is actuated wholly by a wish to serve youthful brethren, and to give merely the result of his own experience. In that experience of forty years he has never met a young man who would not wish to be able to do everything, though an architect, that came within a draughtsman's sphere of operations. He has himself earned good money as an ornamental writer, herald-painter, engineer, civil and mechanical, and in every phase of surveying, whether land, marine, building, or otherwise.

(To be continued.)

### DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.†

#### LECTURE II.

(Continued from page 266.)

THE air may also be admitted through apertures made in the walls or doors. The simplest way to do this is to make a hole through the wall, and fasten a piece of board in front of it in a sloping manner, so as to give the air an upward direction. It is better to put "checks," as they are called, on the sides, for they serve not only to attach the sloping board to the wall, but to prevent the air from falling out sideways into the room. This ventilator may be hidden by hanging a picture in front of it, and will cause no draught. I may state here that it is better, in a large room, to have two or more small ventilators of any kind whatever than one large one, and that no single inlet opening should be larger than a square foot. Openings of half that size are preferable. It is calculated that there should be 24 square inches of opening per head, so that a square foot would be sufficient for six persons. In such an opening as has been described, wooden or glass louvres may be placed. The same end may be attained by making one of the upper panels of a door to open forwards with hinges to a certain distance; or, even in some instances, by fixing it in this position. An obvious disadvantage, and one which always has to be considered in making openings through walls and doors, is that conversation which goes on in the room can be heard in the passage outside. Sherringham's valve is a modification of this plan, and can be fitted either into an outer wall or into one between the room and the passage or hall. It consists of a metal box to fit into the hole in the wall, with a heavy metal flap, which can spring forwards, and is exactly balanced by a weight at the end of a string passing over a pulley, the weight acting as a handle, by means of which the ventilator can be opened or shut or kept at any desired position. What has been said before applies to these ventilators. They should not be placed too near the ceiling, and this is the mistake that is generally made in fixing them. Here I may mention that it is sometimes advised to place perforated zinc or wire gauze outside the entrance to the ventilators, so as to prevent dust, &c., coming into the room. This is not advisable, as the apertures get clogged up, and the entrance of air is much impeded. It is better to have an iron grating which will prevent birds entering, and to employ other methods for preventing the entrance of dust, soot, &c. Where this is considered necessary, the plan of passing air through cotton wool, which must be frequently changed, may be adopted. Currall's ventilator for admitting air through the door is sometimes useful. It resembles his window ventilator almost exactly; a long slit is cut through the door, a perforated metal plate placed outside, and a flat plate fixed parallel to the door inside and in front of the slit, thus giving the air as it comes into the room an upward direction. An admirable plan for the admission of air

into rooms is by means of vertical tubes—an old system, but one which has been brought into prominence of late years by Mr. Tobin.

Several contrivances have been devised for the admission of air close to the floor, just behind a perforated skirting board. Among these are Ellison's conical ventilator, and Stevens's skirting board ventilator, in which metal cups are placed in front of the inlet openings, and so distribute the air that no draught is felt. I think, however, that it is only advisable to admit warmed air at a low level into rooms, but there is no reason why such openings should not be made high up in the rooms—behind cornices for example.

We now come to speak of exit shafts and valves. The first and most important of these is the chimney, about which I have already spoken. I need only add here that it is advisable to do without the use of cowls upon chimneys wherever it is possible. If the chimney can be made high enough it will not require a cowl, and if it cannot, a simple conical cap is generally sufficient to prevent down draughts. There is no doubt, however, that Boyle's fixed chimney cowl for preventing down draught not only does so, but produces an up draught in the chimney when the wind blows down upon it, as I can readily show you by an experiment with the model I have here. A small piece of wool is made to ascend in a glass tube by blowing vertically down upon the fixed cowl placed upon the top of it. Of revolving cowls for chimneys, the common lobster-backed cowl is probably the best. Whilst speaking of cowls, I may as well mention that a variety of cowls, some of which I have here, have been invented with the object of increasing the up draught in exit shafts of various kinds, some are fixed, as Buchan and Lloyd's, and some revolving. Whether any of these cowls increase the up current in exit shafts is a matter which is still under investigation, but I can show you, quite easily, that the common rough experiment, by means of which they are supposed to do so, is entirely fallacious. Cotton wool is drawn up a tube at least as easily by blowing across it in a slanting direction as by blowing through a cowl placed on the top of it. The fixed cowls have the advantage that they cannot get out of order. The revolving cowls have the disadvantage which is common to all apparatus with moving parts, that they are certain to get out of order some day or other. Whether they increase up draughts or not, there is no doubt that most of them prevent down draughts, and, like any other cover, prevent the entrance of rain.

Openings are sometimes made high up in the room into the chimney flue and protected by valves, the best known of which is Arnott's valve, which consists of a light metal flap, swinging inside a metal frame work in such a way that it can open towards the chimney flue, but not towards the room. Any pressure of air from the room towards the flue, will, therefore, open it and allow the air to escape from it into the flue. Pressure of air the other way will shut it. The disadvantages of this ventilator are that it makes an irregular noise, although this has been, to a considerable extent, obviated by the india-rubber padding with which it is now fitted. It also occasionally admits a little soot, and, of course, air at the same time, from the flue into the room. It is obviously, it seems to me, at variance with sound sanitary principles to make openings from the interior of the room into the chimney flues, and then to trust to valves for preventing the air of the flue from coming in. A far better plan is to have shafts placed by the side of the flues, and this, of course, is better done when the houses are built. The easiest and most satisfactory way of doing it is by means of air and smoke flues combined, in which the air flues are moulded in the same piece of fireclay as the smoke flue itself. These air flues can be connected with the upper parts of the rooms, and up-draughts will be inevitably caused, as the air in them will be considerably heated on

account of its immediate contact with the outer side of the flue. Such shafts can only serve as inlets when the flues are cold, and so it is advisable to use them especially with flues that are always hot—as, for instance, that of the kitchen chimney—and it is desirable, wherever it can be done, to connect the kitchen with a different air-shaft from the other rooms, or it is possible that air from the kitchen may get into some of the other rooms of the house.

Of exit ventilators not connected with the chimney flues, I may mention Mackinnell's, which also provides an inlet for air as well, and which is very useful in little rooms, closets, &c., having no rooms over them. It consists of two tubes, one inside the other, passing through the ceiling into the outer air. The inner one is larger than the outer one, and projects above it outside and below it an inch or so into the room. At its lower end a circular rim is attached horizontally parallel to the ceiling. The outer air enters between these two tubes, and is deflected by the rim just mentioned along the ceiling, so that it does not fall straight into the room. The vitiated hot air passes out by the inner tube, the action of which is, of course, considerably increased if a gas burner or other light be placed beneath it. It is upon this principle that the lamps for lighting railway carriages are made, the reflector answering the purpose of the rim round the end of the inner tube, and the air to supply the lamp coming in between the reflector and the glass shade, while the products of combustion escape through the pipe leading from the middle of the reflector, and immediately over the flame. Of course Mackinnell's ventilator requires a cover to keep out the rain, and it is necessary, in fact, to have a double cover, so that the heated air which escapes by the inner tube shall not be carried back into the room by the entering air.

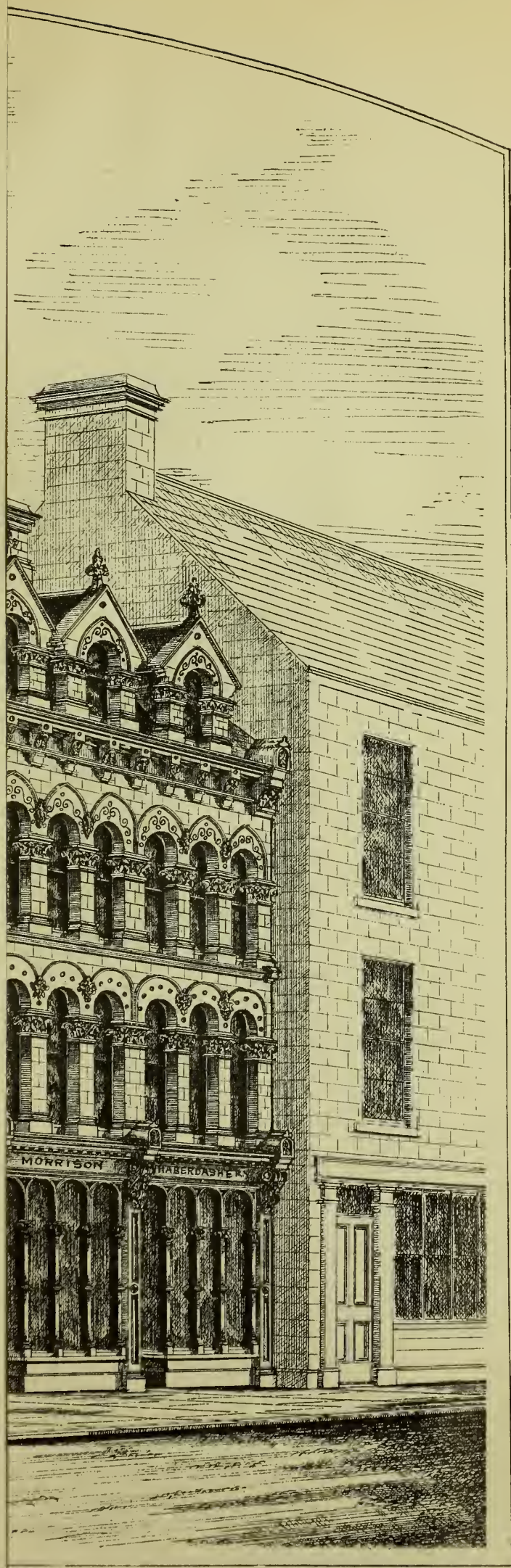
This brings us naturally to say a little about lighting. Candles, lamps, and gas, help to render the air impure. It is calculated that two sperm candles, or one good oil lamp, render the air about as impure as one man does, whereas one gas burner will consume as much oxygen and give out as much carbonic acid as five or six men, or even more. This is why it is commonly considered that gas is more injurious than lamps or candles, and so it is when the quantities of light are not compared, but with the same quantity of light, gas renders the air of a room less impure than either lamps or candles. If, in the dining room, instead of using five or six gas burners, as we too often do without any provision for the escape of the products of combustion, we used 40 or 50 sperm candles instead of 6 or 8, we should have a fairer comparison between gas and candles.

I have no time to enter into a discussion of the relative merits of various kinds of candles and lamps, but with regard to gas I would say that, considering the fact I have just stated, it is always advisable to provide a means of escape for the products of combustion immediately over the gas burners. By this, not only may these products be carried away, but, with a little contrivance, heated air may be drawn out of the room at the same time, and so an efficient exit shaft provided, in addition to the one found already in the chimney. Very simple contrivances will answer this purpose. A pipe, with a funnel-shaped end, starting from over the gas burner, and carried straight out into the open air, with a proper inlet opening, is all that is required in some instances, as in badly placed closets. For large rooms, the sunlight ventilators are found to answer admirably. They should be provided with a glass shade, placed below them to intercept the glare, and to cut off a large portion of the heat. An elegant contrivance for dwelling-rooms is Benham's ventilating globe light. In this the products of combustion of the gas pass along a pipe placed between the ceiling and the floor of the room above, into one of the flues. This pipe, being surrounded by another opening into the ceiling of the room at one end, and into the flue at

\* The largest parish in England is Saxmundham, in Suffolk.—Ed. I. B.

† By Prof. W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.









PREMISES ERECTED IN CHURCH LANE-BELFAST—FOR—WILLIAM GREGG, ESQ<sup>R</sup>, J. P.  
WILLIAM BATT, M.R.I.A.I., ARCHITECT.



the other, is guarded at its entrance to the flue by a valve, which can be easily shut when the gas is not burning. This double tube, as it passes under the floor of the room above, is covered with a fire-proof material, so that the floor is not affected by it. The joists, where they are notched, have iron bearers put across to support the floor boards above. Air is admitted by another pipe passing through the wall of the house into the external air, and ending also in the ceiling of the room by openings around those of the exit shaft. Thus warm air is introduced into the room at the same time that vitiated air from the upper part of the room, and also the products of combustion of the gas, are carried out of it into the chimney flue.

Gas stoves are gradually becoming largely used instead of coal, and, when proper provision is made for the escape of the products of combustion, they are certainly very convenient, and cleanly contrivances. I have no doubt that this will, in the end, be found to be the proper use for gas, and that we shall cease entirely, or almost entirely, to use coal in our houses. By using coal in the way that we do, we lose all the valuable by-products—the ammonia, the tar, the carbolic acid, aniline dyes, &c., which are derived from the refuse of gas works, and which are worse than useless to us in our fires. Gas may be burned either mixed with air or not. In the first instance, a gas stove or grate filled with pumicestone or asbestos does not much resemble an ordinary fire, but if the gas be burned unmixed with air it is almost impossible to tell the difference. Generally speaking, it is found necessary, when there are several gas stoves in a house, to have a special supply of gas with larger pipes for them. What the gas companies should do is to lend gas stoves of various kinds, especially cooking stoves, to their customers for a small annual payment, as is done very successfully in continental cities. It is important that gas cooking stoves should not give an unpleasant smell of unburnt gas as some do. This is not only a waste but a nuisance, as coal gas always contains carbonic oxide (an extremely poisonous substance), and should, therefore, not be allowed to escape into the air, even in the smallest quantity.

I have now to mention an artificial system of ventilation which has been lately introduced by Messrs. Verity Bros. It consists essentially of a fly-wheel fitted with fans or veins. The wheel is made to revolve by a jet of water directed against it, and supplied from a cistern overhead, the water passing off by a pipe into a cistern below. The apparatus can be fixed either in an inlet opening, and so made to propel air into the apartment through an aperture in the wall placed higher than people's heads, and made in a slanting direction, so that the entering air is shot upwards towards the centre of the room; or it can be used as an extractor, by placing it in an exit shaft, and causing it to draw the vitiated air out. The supply of water can be regulated by taps to the greatest nicety, so that the wheel can be made to revolve at whatever speed is desirable. The entrance pipes are sometimes fitted with a vertical tube containing a box, in which ice can be placed, or a holder for perfume, or any deodorant. For smoking-rooms it is found advisable to use the apparatus as an extractor only, and to allow the air to come in by means of Tobin's tubes.

Dwelling-houses are seldom warmed and ventilated by means of hot-water apparatus, and so I do not think it necessary to enter into a description of the plans by which this may be effected.

(To be continued.)

## NEW PREMISES, CHURCH-LANE, BELFAST.

THESE premises occupy the site on which formerly stood some of the oldest houses in the town, which, being in a dilapidated state, the proprietor pulled them down and erected the new buildings, setting them back about 3 ft. from main front, so as to increase the width of footpath, and without being asked by the Town Council. The shops have ornamental pilasters, and, as well as sashes, richly carved caps and moulded bases and bold entablature with massive stop blocks. The sashes are filled with best polished plate-glass in single panes, and on those of sash doors neat ornaments are embossed. The pilasters and sashes are painted quick black, stained and varnished, and well relieved by gold hatching. The buildings have greatly improved the appearance and character of the street. Owing to the leases expiring at different periods the premises were built in two portions; four of the shops were built by Mr. William Hunter, and the remainder, including large stores at rear, by Mr. Thomas M'Arthur. The works were executed in a satisfactory manner according to the plans and specifications prepared by Mr. William Batt, jun., and under his superintendence.

## THE HOME OF THE FUTURE.

"As the home, so the people."

—GEORGE GODWIN.

Houses are built in various ways,  
For people to dwell therein;  
But few are plann'd deserving of praise,  
Below, around, or within.  
What is a dwelling? one may well ask,  
In seeing the time has come  
When men have need to essay the task  
Of building a healthy home.

Houses are many, but homes are few,  
Despite of the country's wealth,  
And dwellings are legion, old and new,  
But they are not homes of health.  
Art and science may raise a pile  
As grand as St. Peter's dome,  
But rich and poor may all the while  
Possess neither health nor home.

A home should not be a human trap,  
But nursery pure; in sooth,  
Plann'd that the morals we may not sap  
Of the child or tender youth.  
Give plenty of water, space, and air,  
And vice you will overcome;  
For cleanliness will be godliness where  
There exists a healthy home.

Architect, builder, and workman too,  
A noble mission is thine,  
If each your duty will dare to do,  
For health and for good design.  
The credit of one, the honour of all,  
Is pledged for the time to come;  
Build well, and your works, strong as Roman wall,  
Will live in each heart and home.

—C. CLINTON HOEY, in *Builder*.

## ADVERSARIA HIBERNICA,

LITERARY AND TECHNICAL.

A VERY useful little work of an educational character was published a short while since by Messrs. Cassell, Petter and Galpin, entitled "How to Read Well in Public and Private." This work, which is intended for youth, has in addition what is termed "A Suitable Selection of Poetical Readings from the Best Poets." The book, however, has a defect which we would like to see remedied in future editions, as far as the prose and poetical selections are concerned. While there are a number of selections from English, Scotch, and American writers, there are scarcely any from Irish authors, save one from the poems of the Rev. George Croly. There is another marked "Anonymous," but it is doubtless considered by the compiler as the work of an English or Scotch poet. It

is passing strange, indeed, that the poem in question should be given as anonymous, as for the last thirty years and upwards the authorship has been very generally known. The compiler of the little book we are alluding to gives short introductory and biographical notes of the authors from whom he selects, and here is what he writes concerning the authorship of "The Forging of the Anchor," believing, no doubt, it was the work of an English or Scotch poet:—"The following spirited poem appeared many years ago in *Blackwood's Magazine*, and is well worth production here [we should think so!]. It consists of two parts, the first being a description of the means and mode by which the glowing shapeless mass of iron at white heat is beaten into a trusty anchor; while the second is a speculative musing on the wonders that the anchor may possibly come in contact with beneath the surface of the sea when rushing through the water to its temporary resting-place below the waves, or when lying many fathoms deep as a holdfast to the good ship that tugs incessantly at the chain which holds it in check. Of these two parts the reader will perhaps prefer the first, because it is a description of what is, while the second speaks only of what may be, or, in other words, because the first is pictured from reality, while the second owes its outline and colour to the imagination only. It would be difficult to find any description of an ordinary scene of every-day life that has been so far lifted above everything that savours of commonplace by the language and fancy of the poet. Half-a-dozen of burly fellows with sooty faces and dressed in leathern aprons, hammering at a red-hot bar of iron, is a prosaic sight enough, and one that we would hardly go out of our way to see; but what does it not become when we regard it through the eyes and in the language of the poet? Truly, in its ability to render the meanest object, the most ordinary scene attractive, lies the true power of poetry."

The above remarks are appreciative enough; but we cannot understand how the author could be oblivious of the authorship of "The Forging of the Anchor," for the poem has been appearing in different collections for nearly the last forty years with the name of its author appended,—Samuel Ferguson (now Sir Samuel). "The Forging of the Anchor" was printed in one of the volumes of Duffy's Library—"The Ballad Poetry of Ireland," published as far back as 1845-6; and since that time it has been reproduced in several newspapers and periodicals, and always with the author's name. Although the name of Samuel Ferguson is a well-known one in Ireland—aye, and in America too—in literary circles, we are free to admit that there are scores of literary men in England who are unaware that the Deputy-Keeper of the Irish Records is a poet of reputation and long standing, and a historical story-teller, too, of no mean power.

Surely when English compilers and publishers bring out a book intended for the youth of the three kingdoms, selections should be given from the works of Irish poets and essayists. Several years ago we would not have wondered at such an exclusive spirit being manifested, but now it is almost quite unpardonable that educational works of the character under notice should be issued of such a one-sided nature. We, at the same time, bear testimony to the value of the little book as an educational one, though we regret it should be published to the exclusion from its pages of selections from Irish writers. It is needless for us to enumerate Irish authors whose works would afford excellent material in prose and verse for suitable selections.

In respect to the author of "The Forging of the Anchor," we believe the public would hail the appearance of a complete edition of his collected poems, scattered for the last forty years through various channels at home and abroad. If we are not misinformed, we believe that our esteemed countryman Sir Samuel Ferguson will shortly give to the

ENORMOUS BLASTS IN GRANITE QUARRIES.  
—The members of the Institution of Mechanical Engineers recently visited Inverary, and on the route witnessed two enormous blasts in the granite quarries of Mr. Sim, at Crarae-and-Furnace, by one of which it is estimated 60,000 tons of rock were thrown down, and by the other 100,000 tons. In the former case three, and in the latter case five, tons of gunpowder were used.



Irish and British public a volume including all his published poems, with corrections and additions. All of the poems of Sir Samuel Ferguson have the true ring of poetry, and bear evidence of the constructive skill and finish of a true literary craftsman or master workman.

An illustration of Kilmacduagh Round Tower was given in a recent issue of this journal, reproduced from the drawings appended to Mr. Deane's report on our National Monuments. Speaking of the human bones and skeletons found at the base of this tower, lying east and west, Mr. Deane, wrote:—"This is exactly a similar state of things as found beneath the Round Tower of St. Canice, Kilkenny—an incontestible proof that in the seventh century (the supposed date of the erection) a burying ground existed where the tower now stands, and from the positions of the skeletons, of the Christian era." The reviewer of Mr. Deane's report did not agree with the conclusions of the above extract, as he confessed he did not believe in the ecclesiastical origin of the Round Towers, and the finding of the skeletons was certainly no proof of the existence of a Christian burial ground on the site prior to the erection of the tower. Skeletons have often been excavated from the base of many of our towers (within the walls). The South Munster antiquaries in 1841 conducted various researches to prove the truth of their own theories. Among these local antiquaries were the following—Windele, Horgan, Hackett, Odell, Abell, and Wall. In nine of the structures examined, proofs, in the opinion of the antiquaries, were forthcoming to establish the sepulchral character of the Irish Round Towers. Two skeletons were found in the base of the Tower of Ardmore, deposited in a bed of sifted earth. Above this was a floor of concrete, over which were four successive layers of stones, closely fitted to each other, and over these was laid another floor of smoothed concrete. There was no evidence of any coffin, nor were there found any remains of croziers, rings, or other ornaments. The method of burial, and the absence of "finds," afforded a presumption to the antiquaries that the deceased were not Christians. In the base of Cloyne Tower three skeletons were found, and in the tower of Ram Island, County Antrim, human remains were found. Similar discoveries were made in the Tower of Roscrea. In the Tower of Drumboe, several feet below a deposit of rubbish, earth, human bones, horns, stones, were found, which (in the opinion of the antiquaries) bore the appearance of having undergone the action of fire, and a concrete floor similar to that found in the Towers of Ardmore, Cloyne, Roscrea, &c., was reached. Below this was found a stratum of dark, loamy earth, under which, and even with the foundation of the building, lay a skeleton nearly perfect. A cast of this skull was taken, we believe, for the Belfast Natural History Society. An urn was discovered in the Tower of Timahoe, and in the two Round Towers in Scotland, in Brechin, and Abernethy, fragments of urns were also stated to have been found. This argues a Pagan origin in the opinion of those who only go in for the sepulchral character of our towers, but the sun-fire worship and sepulchral theory has not, perhaps, at present many believers. Black, in his "History of Brechin," says that bones were got laid below flat stones, thus, in the same sepulchre, in his opinion, and that of other writers, exhibiting cremation and inhumation together, as has been found in the Etruscan tombs. In Hall's work on Ireland what we have embodied above will be found enlarged upon, but there have not been wanting theorists who have essayed to pick the theories of their predecessors and contemporaries to pieces, and exhibit their own as the genuine and incontrovertible ones. The accumulation of skeletons, bones, horns, urns, &c., found in the bases of some of our towers have been explained away by more

than one writer. It has been shown that roads have been cut through graveyards, and towers that formerly existed in them or at their borders have by the process been left outside them, or on the opposite side of the road. It has been shown, too, that the veneration of the Irish peasantry for the remains of their friends often naturally led them to seek out a place wherein to deposit the bones of their ancestors, and thus rescue them from further profanation. Such receptacles as those presented in the bottoms of our Round Towers were possibly often availed of, and the covering over of remains by flags and concrete were merely methods adopted for their more safe preservation. Apart, however, the fact of finding skeletons or bones in the bases of our Round Towers, does not prove much in favour of either the Christian or Pagan origin of our Round Towers. It is by their architecture that they must be in a great measure proved; and undiscovered materials of history, with the aid of science, may help our successors some day to satisfactorily settle the difficulty, which has been a vexed question for several centuries.

It takes a long time to perfect some inventions. Balloons as yet cannot go against the wind, though steam and gas are available. From the date of the first steam engine it was a comparatively long period before the railway locomotive superseded the stage coach. The first rude telegraph, too, had a pretty long start of the telegraph of Wheatstone and Morse. But, not to enumerate, the "Type-Composing Machine" appears to be dragging its slow length along for half a lifetime without arriving at any great degree of perfection. It has as yet certainly not driven the "comps." to the wall, for, though useful, it is not generally useful as a "maid of all work." Nearly forty years since, Young, the inventor of one of these type-composing machines, was talked of much in public. About 1842-3 Mr. Young stated that as many as 8,000 letters or types could be set up in an hour by two females at the type-composing machine with the aid of a lad or two; whereas an ordinary compositor sets up not more than from 1,500 to 1,700 types in the same time. Here is what was further written of the value of the type-composing machine of the above-mentioned date:—"Besides, in a short space of three months a person of ordinary education can become as skilful and expert in 'playing' the types on this machine as it would take three years to render the same person by the method now in use in printing establishments; thus the time now spent in long apprenticeship can be employed by the future compositor in acquiring information which he cannot at present attain to; in other words, the young compositor can proceed to the acquirements of his business, an educated and well-informed person, instead of being the reverse. The expense of printing by this machine is only one-third of that by the ordinary method."

In 1876 the *Times* newspaper, London, issued a book, being a reprint of its annual summaries for a quarter of a century (1851-1875). The volume of 598 pages was set in type by four lads working at two composing machines, in ten days of eight hours, at the rate of 2,150 lines per day. It was printed from stereotype plates in perfected sheets, each containing 128 pages, at the rate of 12,000 per hour, on the "Walter Press." There certainly has been an advance here in speed, but in general applicability even our improved type-composing machines of the present day are not a success. They look well in exhibitions, but for many forms of printing work they are entirely unsuitable. For setting columns of dead close matter, without breaks or headings, a type-composing machine will do fast work, but for job work and advertising pages the type-composing machine is not the thing that men desiderated a century ago. The founder of the *Times*, in the last century, set up for a while his paper by the logograph system, but words in blocks (or portions of words often

occurring) did not appear to possess any facility over the single letter. The logograph process was given up as a heavy and cumbersome system, but of late it has been revived in connection with some newspaper and printing establishments. Our present-day "comps." and "galley" slaves have not taken to the revived system kindly, and we doubt if the second attempt to introduce the logograph system will be much more successful than the first, nearly a century ago. Who can say, however, but we will one day succeed in printing without any type at all, or regular or permanent type? We make the sun or the light take pictures; but "Hush! tell it to nobody, we will shortly be able to flash impressions from the shadows of our thoughts passing and repassing, catching them up and fixing them for the time being by some mordant, and then working them off by —." The rest is protected by royal letters patent, applied for by ourselves. H.

#### THE "ANONYMOUS" BRIDGE.

THE annexed bit of amusing fact and fiction in reference to the new Swivel Bridge, appeared in the *London Daily Telegraph* of the 30th ult. The writer seems to be unaware that there was once a public character of some note in this country of the name of Beresford, who took an active part in the promotion of public works (the Custom House among others), and that Beresford-place was called after him. If the new bridge, therefore, is to bear the name of Beresford Bridge, will it not rather be owing to the man than to the street nomenclature that the name has arisen? We have already an iron bridge of old date spanning the Liffey, which, in the absence of any special name, bears the designation of the "Metal Bridge," but it is a toll bridge, and its erection was the result of private speculation. As there has been no public baptism of the new bridge over the Liffey, it is not unlikely that the public will be content to call the new structure "The Swivel Bridge," quite as fitting a name, perhaps, as either "Butt" or "Beresford." We hope it will not become a new "Bridge of Sighs":—

An anonymous bridge is a humorous but somewhat inconvenient novelty in the annals of thoroughfares. It seems there is now, among the wonders of Dublin, a bridge that answers this negative description, and will probably have to be christened by ballot. The nameless viaduct, which has recently been opened, crosses the Liffey at a point where Conciliation Hall formerly stood; and, for the innocent reason that it leads into Beresford-place, the Commissioners of the Port proposed simply to call it Beresford Bridge. Whether the dulness and defective invention apparent in this title shocked the witty population of the Irish capital, or whether, as seems also probable, party tastes and crotchets were piqued by the Commissioners' choice of a name, cannot with certainty be told. All we can learn is that, for lack of agreement on the subject, the usual ceremony was relinquished, and the bridge was left to open itself as best it might, and thenceforward to follow its own devices. Home Rulers have, through some of their public organs, expressed a desire that it should be called Butt Bridge; and perhaps, as Mr. Weller, senior, would have said, this designation "sounds more tenderer." Meanwhile, in the difficulty of conciliating those who have hotly engaged in the scrimmage or faction fight of nomenclature, the unfortunate piece of masonry has remained, like the deed of the Witches in "Macbeth," or, like most of the Neapolitan lazzaroni, "without a name." This is unkind, for at present the structure has done nothing to be ashamed of, or that should render it unmentionable to ears polite. Surely, if all those disputants who have hitherto prevented the new bridge from receiving any distinctive appellation, would put their heads together without unnecessary violence, they might strike out an idea that should end this nominative conflict.

**GAS PROFITS.**—The Gas Committee of the Manchester City Council announce that they will be able to turn over to credit of Improvement Committee about same amount as last year (say £50,000).



## NEW DEEP-WATER QUAY, QUEENSTOWN.

We take the following from the *Cork Constitution* of the 5th inst. :—

The ceremony of lowering into its position the first concrete block of the new deep-water quay at Queenstown took place yesterday. The event was one of the most important within the city or harbour for many years. The quay will be 600 ft. long and 40 ft. wide. The estimated cost is £30,000, for nearly half of which sum the Great Southern and Western Railway have become responsible; and, considering the great advantages which so important a work is sure to confer on the great trunk line of Ireland, it is not to be wondered at that they should have embarked so largely in the undertaking. When this important quay is completed, the Great Southern and Western Railway Company are certain of having the greater portion of the traffic between the great continent of America and England diverted over their line, for provided as they then will be with a deep-water quay at Queenstown to the very doors of their wagons, and with similar facilities at the North Wall, Dublin, the route between the two countries will be considerably shortened, and facilities not possessed by any other railway in the United Kingdom will be afforded the above-named company. At the lowest state of the tide there will be 27 ft. of water off the new quay, and this will enable transatlantic steamers to come alongside at any state of the tide, thus getting rid of the great obstacle which always prevented transatlantic steamer companies from loading and discharging at Queenstown. Viewed, therefore, in whatever light it may be, the proceedings at present under notice are most important, and the work, when completed, is certain to confer advantages incalculable not only upon Cork and Queenstown, but on the country generally. The Harbour Board, as the port authority, had of course the conduct of affairs, and that body, with their accustomed generosity, invited the members of the Town Council of Cork to accompany them to Queenstown to witness the ceremony. Accordingly the River Steamers Company's steamer *Citizen* was chartered for the occasion, and at twelve o'clock a goodly company assembled on board her as she lay at the Custom House Quay, both Harbour Board and Corporation being well represented. They were attended by the excellently trained band of the 7th Royal Fusiliers, under the baton of Mr. J. V. Moran. On arrival at Queenstown all eyes were centered on the floating shears, from which the first block of the new quay was suspended about midway in the water, and about which a large crowd had collected anxiously awaiting the ceremony. The floating shears, with the machinery for lifting the concrete blocks, was supplied to the contractor, Mr. J. Delany, of this city, by a London firm. The hull is 100 ft. long, 32 ft. wide, 9 ft. 10 in. deep fore, and 13 ft. 10 in. aft. The shear legs are fixed at the fore end, together with a pair of powerful pulley-blocks and chains for raising and lowering the massive blocks of concrete, about 140 of which will be altogether required, and which are rectangular, being 20 ft. in depth, 8 ft. in thickness, and of 12 ft. frontage, each weighing close on 120 tons. At the after end of the hull is constructed six water tanks capable of holding 150 tons of water, to act as a counterbalance to the block. To these tanks a centrifugal pump is connected, so that they can be filled when raising the block and emptied when lowering it, and by this means the hull can at all times be kept on an even keel. The machinery consists of a locomotive boiler and a pair of eight-horse power horizontal engines connected by gears to two drums, each 7 ft. long by 4 ft. diameter, and chains pass over two powerful pulley-blocks, which are attached to the upper part of the shear-legs, the lower pulley-blocks being fitted to massive forged beams, the ends of which are slotted out to receive the lifting bars, and by this means the huge block is suspended from four points, and kept perfectly level. The engines drive a pair of screw propellers which considerably assist in working the shears into position. On the arrival of the party, the Mayor, attired in his official robes, attended by his sergeants, and accompanied by Mr. Philip Barry, engineer of the Harbour Board; Captain Byrne, Harbour Master; Mr. Sutton, Deputy Harbour Master; Sir George Penrose, Mr. E. Scott and others, proceeded to the floating shears, where they were received by Mr. Delany, contractor; Mr. Henry Keating, C.E., clerk of works; Mr. J. H. Carter, a member of the firm who supplied the shears, and Mr. Donovan, foreman of works. The Mayor gave the order to commence lowering the block, portion of which was then about 6 ft. over water; and as it was being very smoothly and gradually lowered, he said,—"Authorized and honoured as I am by the Cork Harbour Commissioners to take the chief part in performing

the ceremony of laying the foundation-stone of this great project which they have undertaken for the improvement of this port, I most heartily comply with the request. I now direct that this block be lowered to its destination, and thus on behalf of the Commissioners I commence this great work which, when finished, will, I hope and trust, redound to the advantage and prosperity of the port of Cork and the country generally as well as to the everlasting credit of the Commissioners. I call upon all present to join me in humbly supplicating God's blessing upon the undertaking." The band here struck up "Rule Britannia," and the cheers of those assembled, as the huge block was lowered into its berth, were loud and long. As the block reached water level, the Mayor smashed a bottle of brandy on it, formally declaring, at the same time, the block well and truly laid. The whole machinery worked most smoothly, and the immense block was lowered with an ease which, considering its weight, was nothing short of wonderful; in fact, had it only weighed a few pounds it could not have been placed in position with greater ease. Subsequently the well-known divers, Davis and Sutherland, contractors for the submarine part of the quay, went down and saw the block laid in its proper groove. We must congratulate Mr. Delany, the contractor, for having in the first instance the enterprise to obtain at a cost of close on £5,000 the floating shears which will facilitate him so much in carrying out his contract, and in the next place for having engaged the services of the most skilled men procurable to carry out the diving operations. This enterprising spirit is in itself a sufficient guarantee that the contractor intends leaving nothing undone which can enable him to complete the work in a manner creditable to himself and to the port of Cork. Mr. Delany is bound by his contract to have the quay completed within two years. He has now twenty-seven blocks of equal dimensions with that laid yesterday ready to be laid; these will make up an aggregate frontage of 200 ft., and with the facilities with which he has provided himself the contractor expects to be able to lay one block at each low tide. The party having re-embarked, the steamer proceeded up the Carrigaline river, and on its return came to anchor in Drake's Pool, where an elegant *déjeuner* was partaken of, followed by toasts and speeches.

## "MEND YOUR WAYS."

(INSCRIBED TO THE CIVIC COUNCIL.)

"Mend your ways," said the Magistrate stern,

As he gave six months to the building thief;

"Tis never too late, my man, to learn;

Work for your living and honestly earn,

And resolve when free to turn a new leaf."

"Mend your ways," said the Justice-in-Chief

To members in court of a local board.

"Though dressed in little authority brief,

Still you deny your townsmen relief,

Your parish is a scandal—'pon my word!

"Mend your ways," by repairing your roads,

Constructing new drains and cleansing the old.

Dirt lies in your streets and lanes in loads;

Neglect is apparent, and all of it bodes

A future harvest of evils untold!

"Mend your ways," said the architect who

Had cautioned a builder twice before;

"Mend your ways, or I'll make you undo

The work your workmen are 'scampering' through:

I'll certify for such work no more."

We're mending our ways through Parliament,

We're mending our ways through the Public Press;

But the many reck not the good intent

Of the few, still labouring on content,

And mending the world nevertheless.

C. H. C.

## THE TIMBER TRADE.

In their circular for current month, Messrs. Farinworth and Jardine, Liverpool, state that the arrivals from British North America during the past month have been 56 vessels 44,873 tons, against 62 vessels 43,618 tons during the like period last year. We have again had a large import, and whilst there has been a slight increase in the consumption of square timber during the month, there has been a very large falling off in the consumption of deals, and stocks on the whole have increased. This is much to be regretted in the present depressed state of the market, and it is very desirable that the import for the remainder of the season should be on a much reduced scale, otherwise there will be little hope of reaction in prices taking place this year. Of yellow pine timber sales have been at very low prices; the consumption has been little more than half of the like month in 1878, and the stock now exceeds that of last year. For oak there has been

a good delivery, some large sales having been made, but all of the best quality, and at low prices; ordinary wood is quite neglected. Red pine and elm are sold in very limited quantities, and prices are low. Ash, unless of prime quality, is very unsaleable. The import of pine deals has been excessive, being 3,983 standards against 1,670 last year, and, with the present limited demand, stocks are far too large; odd sizes are very difficult to sell. The import of spruce deals, though less than during the like month last year, has still been too large and much in excess of the demand, the consumption showing a marked falling off as compared with last year; stocks are accumulating, and unless shipments are greatly reduced there will be little chance of prices improving. Latterly there have been fewer cargoes pressing on the market, and the late auction sales show a slight improvement in price; the future course of the market will altogether depend upon the quantity coming forward for the remainder of the season. Pine deals continue neglected and without any improvement in value. For birch there is a better demand, and the late sales have been at higher rates. The arrivals of pitch pine during the past month have been 2 vessels 2,121 tons, against 4 vessels 2,240 tons last year. The deliveries during the month have been satisfactory, but stocks, whilst reduced to a more moderate compass, are still ample. There have been no cargo sales ex quay during the month, and there is no change in value. The arrivals of Baltic and European woods during the month have been 23 vessels 9,855 tons, against 23 vessels 10,398 tons last year. Fir timber has gone into consumption to a fair extent, and of some descriptions the stock is light. Of red deals a few cargoes have been imported, but the bulk has gone into stock, the demand having been very limited. Flooring boards are dull of sale, and in face of the ample stock and small demand buyers are not disposed to respond to the advanced prices demanded by shippers.

## LAW.

## FAILURE OF METAL GIRDERS.

AN ARBITRATION CASE.

*Wilson v. Wheelan—Wheelan v. Lucas and Son.*—The questions involved in the actions entered in the above names were, by consent of the parties, referred to arbitration. On the 6th inst. Messrs. T. A. Dickson, M.P., J.P., and John J. O'Hagan, J.P., with John F. Harris as umpire, sat in the Court-house, Newry, for the purpose of holding an inquiry. The facts can be gleaned from the following:

The plaintiff Wilson, in the spring of 1873, entered into a contract for the erection of a second storey to his spinning-mill in Edward-street, Newry, with defendant, Wheelan, a builder and contractor. Wheelan thereupon contracted with Messrs. Lucas and Son, iron-founders, for the supply of metal pillars and girders to support the masonry of the second storey. On Sunday, the 12th of April, 1874, one of these girders broke, falling on the floor of the spinning-room and bringing down with it a quantity of masonry. On examination of this beam it was found that it was defective, and liability having been admitted on the part of the founders, a new beam was supplied by them, and the cost of fixing same was also defrayed by them. On the 24th of December last a second beam gave away, and again on the 1st of January following a third beam broke. After some correspondence the contractor Wheelan, and the founders, Lucas and Son, declined to accept responsibility, and thereupon the plaintiff replaced the broken girders, and had the remaining ones strengthened by tie-bars and truss-rods, and commenced his action against Wheelan for damages in respect of the injury sustained by him. Wheelan alleged that if he were liable to plaintiff, he would be entitled to recover any damages awarded against him over against the firm of Lucas and Son, who had contracted to supply him with the girders, and he thereupon commenced an action against Lucas and Son. The award has not as yet been made known.

Mr. Monroe, Q.C., Law Adviser (instructed by Mr. Jas. Henry, solicitor, Dublin), appeared for the plaintiff Wilson; Mr. Orr (instructed by Messrs. Greer and Mullen, Newry), for defendant Wheelan; and Mr. Dodd (instructed by Mr. James Murphy, Newry) for Lucas and Son.



## ANTIQUITIES OF FINGAL.\*

By JOHN S. SLOANE, Architect, M. Inst. C.E.I.

NO. I.—ST. DOULOUGH'S.

I CANNOT now remember when it was that I first took a pleasure in roaming about my native Fingal. It is a great many years since I brought home to my mother from Killester graveyard the produce of the trees which grew there in rich luxuriance to make elder-berry jam, but the fact is painfully impressed upon me from the gross ingratitude with which my efforts to please were treated by my parent when she heard of the locality from whence I brought my botanical offerings; and the loss of her sugar and trouble (sugar in those days was much dearer than now, "preserving lump" being at least 1s. the pound), for she could not think of keeping the confection, no matter how well preserved.

The little church made an easy copy for an effective sketch, as did Artane, old Clontarf Castle with its Norman keep (and funny entrance and Gothic windows, like a stable turned religious!—before William Vitruvius Morrison restored it), Kilbarrack, Kinsaley, Carrickhill, and Howth; but the crowning gem was and is St. Doulogh's. I regret to say I have no sketch-book now extant older than one of 1844; but I remember distinctly making drawings of these places as far back as 1836.

In 1856 I had the honour of being admitted a member of the St. Patrick's Society for the Study of Ecclesiology, and, as it was almost considered a *sine quâ non* of membership to read a paper, I, with considerable diffidence, suggested the subject of St. Doulogh's, which was at once kindly sanctioned by the council. Having made most careful and elaborate measurements of the unique buildings, and drawings of the well and St. Catherine's pond, I read my paper at the May meeting of the society in the Royal Irish Institution, College-street, and had the pleasure of seeing it published in their proceedings, illustrated with reduced copies of my drawings.

I am not aware whether the attention thus drawn to the state of St. Doulogh's had anything to do with its repair, but I felt much flattered when, two years afterwards, I was asked to assist (with a committee then in process of formation, consisting of some of our greatest authorities on such subjects) in devising the best means of rescuing the ancient remains from ruin. Meetings were held; my views met with the most courteous consideration, and were assisted by Doctors Petrie, Reeves, Todd, and the other *savants*, and in August, 1859, my final report was received at a meeting in the Library of the Royal Irish Academy, when it was decided to collect subscriptions. Thanks were voted to me in January, 1860, for my gratuitous services and exertions; and the works of reparation commenced in the month of March following.

These buildings, to which I will now have the pleasure of calling the reader's attention, appear to have interested several writers of eminence; and, in common with other similarly stone-roofed structures in Ireland, much has been written about them, although very little of a satisfactory nature can be said to have been arrived at.

I have read nearly all the authors who have treated on the buildings at St. Doulogh's, and I find in some cases the most conflicting statements, whilst in others the writers appear to have merely followed in the beaten path of their predecessors. The name of Doulogh I find spelled differently by almost every author. Doctor Ledwich, in his "Antiquities of Ireland" (second edition, 1803), says:—"St. Tulloch or St. Doulach is a corruption of St. Olave. Now St. Olave was born in 993, and died at the age of thirty-five, so that this chapel could not be older than the beginning of the eleventh century." On this Lanigan (vol. iii. p. 359-60)

remarks:—"The doctor had no right to rob the Irish nation of St. Doulogh or rather Doulach and give him to the Danes, as he does at page 147, where he says that Doulach is, &c., V. *ut sup.* But St. Doulogh was an Irishman, son of Amalgad, son of Sinell, &c., and his memory was revered on 17th of November, in the spot called *Clochar*, on which the church is situated. The Doctor might have learned this much even from Archdall (at St. Doulogh's), without introducing his favourite Danes, and on enquiry he could have found that St. Doulogh must have lived a very long time before St. Olave was born. He refers to Harris (History of Dublin, p. 86), who says that there was a St. Olave's Church at end of Fishamble-street, vulgarly called St. Tulloch's, or, he adds, St. Doulach's. But Harris makes no mention of St. Doulach's in Fingal, with which place the vulgarly named St. Tulloch's had nothing to do."

In some of the works that I have examined on the subject I find a statement so far-fetched that it is worth noticing here. St. Doulogh's is described as:—

"Acuracy in diocese of Dublin, sit. in bar. Coolock, Co. Dublin, prov. Leinster, about four miles N.E. from the metropolis. It has been long noted for a well dedicated to the Virgin Mary, adjoining to which is a small place called St. Catherine's pond. The church here is worth attention. It is one of these few structures in this kingdom erected from the beginning of the eighth to close of the eleventh century, and in a different style of architecture from any at this day to be found either in Britain or the western parts of Europe, being evidently built in imitation of the original Christian churches in the southern countries taken from the ancient heathen temples of the Greeks and Romans; and which, probably, were introduced into this island by the Greek and Roman clergy, who retired from their native countries on the arrival of the Goths and Vandals into the Roman empire. These churches now remaining in Ireland are all remarkably small, seldom exceeding 40 ft. in length, and 20 in breadth, being covered with circular stone arches, under stone pediment roofs; and the walls and arches frequently ornamented with columns and pilasters, in rude imitation of the Corinthian and Doric orders. They are, however, in respect to taste, far superior to anything erected during the beginning of the latter ages when the Gothic method of building was introduced from Britain."—The "Gazeteer of Ireland," 1799, also "Post Chaise Companion," 1805, in which above is copied almost *verbatim*.

In each of the foregoing, which are similar in tone to others I have met with, it will be remarked that the writers distinctly lead one to believe that the building at St. Doulogh's, as well as the other similarly stone-roofed structures in Ireland, were copied from the heathen temples of the Greeks and Romans. I have looked in vain for anything bearing the slightest resemblance to the Doric or Corinthian orders,—neither pilasters, nor anything approaching columnar architecture met my eye, and I am at a loss to account for the strange manner in which these writers describe this building.

The approach to the ancient edifice is through a small avenue, at the commencement of which, and at the side of the road from Dublin to Malahide, is a stone cross of somewhat singular shape, the arms of which are very short, increasing towards their extremities, like those of a Maltese cross. It is of a very coarse granite without any sculpture or ornament, and stands on a raised stylobate of two steps. In D'Alton's "History of the County of Dublin" it is stated that this is one of a series of crosses that served to mark the meeting or boundary of the chapelry of Kinsealy. In Lewis's "Topographical Dictionary" I find that this cross formerly stood over the south door of the building. My own opinion agrees with D'Alton.

I will now endeavour to describe this very curious building. Approaching it, the most indifferent spectator cannot fail in being impressed by the singularity of the structure. An examination of it furnishes the ecclesiologist with much food for conjecture as to the probable intentions of the founders, and it

is much to be regretted that in the present day we have little else than conjecture to guide us.

Small as it is, it contains seven separate apartments and three stairs, and the number of windows in west end would indicate the existence of a timber floor at one time, and other small rooms. The only entrance now remaining is through a very low pointed doorway, formed in a sort of porch, projecting like a massive buttress from the south-west corner of the tower. This doorway is merely an open without ornament or moulding of any kind, and in it I had fixed in 1860 a massive door and frame, with wrought-iron mediæval hinges, lock, and furniture, but I do not believe it to be the original entrance. Through it you enter a small vaulted apartment now lighted by two windows, one above the other; a chapel containing what is generally and traditionally believed to be the altar tomb of St. Doulogh. Behind this is an arched opening, through which the tomb can be seen from the eastern chamber, probably for the use of communicants. South of the altar or tomb and this opening is a passage pierced through the massive wall, curved, and leading to the principal apartment of the building, which is 21 ft. 7 in. in length, averaging 9 ft. 9 in. in width, and to the apex of vaulted roof 16 ft. This chamber occupies the length of one portion of the building, and includes all under the tower, the vault of which is groined with the rudest masonry, without liernes or ribs; it was formerly lighted by four windows, one of which has mullions and dressings of sandstone, beautifully wrought, and is in good preservation; it is of a later date than other portions of the building; the jambs are without splay, and I believe it to have been placed there about the sixteenth century, as its style would mark that period. The principal window also is in good preservation; it is of a very early decorated style, and has dressings and mullions of fine limestone; the central shaft appears to have been broken at some remote period, and replaced by a shaft of red granite or sandstone of a kind foreign to the locality. The north window and other south window had been built up; the remains of their tracery is soft sandstone or oolite. In clearing out the accumulated rubbish of the floor the central shaft of this window was found and restored to its proper position. The stone used in the tracery of several of the windows must have been brought from a considerable distance, nothing of the kind existing in the country or its neighbourhood.

In making the many repairs entrusted to me by the committee in 1859, and studiously avoiding anything like restoration, excepting so far as opening built-up doors and windows, many matters concealed or covered up became revealed; and when it was decided to build a new church—a work that my increased and peculiar professional engagements prevented my undertaking,—the ancient arrangements brought to light in the preparing of the old works added greatly to the already perplexing nature of the building.\* Two separate hagiostopes or squints became exposed, one in two parts commanding the long east chamber, and one in the extraordinary bevelled off north-west angle; also a very low square-headed door in the corner beside the larger hagiostope, and three square openings with well-preserved bevelled dressings of limestone; the larger hagiostope and door are in pointed arch springing from corbelling in east angle of tower and abutting on similar corbelling in west angle, and a second pointed arch springing from the north-west bevelled angle. These works date long subsequently to the other buildings, but plainly indicate the residence of an anchorite in the cell over the little chapel in which is the altar tomb, and from which is a separate stair and square-headed

\* Substance of a paper read before the St. Patrick's Society for the Study of Ecclesiology; with additions of a later date.

† For notice of Howth, see IRISH BUILDER, October 15th, 1878.

\* The new church was built by Mr. Douglas, of Harcourt-street, from a design by Messrs. Lanyon, Lynn and Lanyon, and consecrated on the 25th January, 1865, by the Archbishop of Dublin; it very ingeniously utilises the hagiostopes, &c. See DUBLIN BUILDER of February, 1865.



doorway. There is no evidence of the style or extent of the building for the use of which these corbelled arches were erected, the small square two-light squint gives on the tomb, whilst the square openings at the side were no doubt for the purpose of conveying food to the inmate, and for confession, ventilation, &c. In many places I have seen additional buildings or aisles added on to the original ancient structure, as at Killiney and Howth, and these arches would show that such an aisle was erected here; but there is no means now of arriving at what may have been its extent or architectural elevation, unless we attempt to draw some conclusion from the square and hevelled corbel stones, two of which appear at the west end and others at the side. They may have formed supports for the eaves of an L-shaped addition demolished to make room for the church, the removal of which in 1861 afforded the opportunity of seeing that portion of the old building.

Very careful photographs were taken by my old friend, Mr. William Allen, of Henry-street, an accomplished amateur who evinced a great interest in the proceedings, and spared neither time, expense, nor trouble in furnishing the committee and myself with pictures that much facilitated the work, and remain as faithful records of the building, and from these principally have been made the sketches with which I propose to illustrate the remaining portion of this paper. The success of the executive portion of the undertaking was altogether due to the energy of the incumbent, the Rev. William Studdert Kennedy, M.A., who had much up-hill work to surmount and annoyances to face that it is not in my province to do more than mention; but I have no hesitation in stating, that if it were not for him there would be little remaining of St. Douglough's to-day.

(To be continued.)

## CORRESPONDENCE.

### "RESTORATION."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the *Builder* of 23rd ult. appeared a letter on the mistakes that occur by architects and others often supposing carvings, &c., of comparatively recent date to be ancient. To this I can add the following:—In the ancient Collegiate Church of St. Mary at Youghal is a very fine pulpit, carved, and bearing considerable appearance of antiquity, but the man who made it was living a few years ago, and may, perhaps, be living still. He was working at some repair inside the pulpit when it so happened that, in 1860, a certain nobleman, looking at the interesting restorations made in the church by the Rev. Samuel Hayman, and observing to a friend, "The head does not ache that designed that pulpit," was considerably startled by the head in question appearing over the desk and saying, "Why, then, my lord, my head does ache; and I would like a something to drink your lordship's health this morning,"—a request that, after a hearty laugh, was complied with.

Youghal, Co. Cork, 2nd Sept., 1879.

### THE LATE FRANCIS JOHNSTON AND THE GATE AT THE OLD BARRACK BRIDGE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In your publication of 1st inst. mention is made (in that interesting article with the masonic signature on "Things Not Generally Known") of a tablet with the name of the architect Francis Johnston, and date, &c., originally inserted in the wall of the tower of the old Military Gate at Barrack Bridge, i.e., old Bloody Bridge.

I do not remember any tablet with the name of the architect or date, but I well remember his arms in stone between the towers on Liffey side of the gate. Indeed one could not well pass over the bridge from

Ellis's-quay without having his curiosity excited as to what could be concealed by the wooden casing that so long remained in a rotting condition attached to the curtain wall.

About 1842 this casing was carried away in a storm of wind and rain, and the piece of what was at once pronounced by the *gobemouches* "presumptuous sculpture" revealed. I can remember many opinions being given in letters to the daily papers as to the cause of the arms being concealed by the timber casing for so many years, and my impression is, that the architect, having placed the memento there, did not wish to raise any question with perhaps "a new king which knew not Joseph," and when the scaffolding was removed the casing was forgotten (accidentally on purpose). Years ago, in 1847, when I went to see the gateway at Kilmainham, I missed the arms, and enquired about them, wishing if possible to have them as a specimen of an old friend's (Edward Smyth) handiwork, and was directed to the Ordnance Department in Castle-yard, where I saw the stone, much damaged. A lengthened correspondence ensued as to price, &c. But in meantime it disappeared, and so ended the matter—one of those "Things Not Generally Known."—Yours, &c.,

JOHN S. SLOANE.

Dublin, 12th September, 1879.

P.S.—The Dublin coffin-maker referred to built a great many houses. When last I saw him (in 1859) he was "getting up" some small cottages between the canal bridge and Castle Forbes in Sheriff-street, Upper. He said, "Ah, Mr. S., I have built a great many houses in my time, and am now, in my old days, living in lodgings." As to Conciliation Hall, it appears but as yesterday since Tom Steele designed that edifice, and used his endeavours to quiet the small rebellion in Sackville-street, caused by Croall's coaches.

J. S. S.

## THE MACHINERY OF GAS TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In my last letter I endeavoured to shew how the ratepayers of Dublin were fleeced of upwards of £2,100 per annum, viz., in wages for lamplighters, &c., that were not required, and for gas that was never consumed in their public lamps. For one-fourth of that sum they are indebted to the ignorance or stupidity of members of No. 1 Committee; for the other three-fourths they have to thank the spirit of mean, greedy cunning, by which the municipal department of the Gas Company is governed; and I will now shew how the same spirit nearly doubled this wanton extra taxation, a couple of months only having to elapse until a repetition of the dose will be attempted,—perhaps to a greater extent.

When the contract between the Commissioners of Paving and Lighting and the Hibernian Gas Company for lighting the streets, &c., expired in 1866, Committee No. 1 in reply to their advertisement, received tenders from three competing gas companies. The tender sent in by the Alliance Gas Company, proposing for ten years to give 16-candle gas at 8s. 11d. per thousand, finding everything necessary for the proper lighting of the city,—mains, meters, lamps, and pillars, governors, &c., and keeping all in correct repair during that period, was accepted by the committee, and a contract was signed on those terms. At that time the price of gas to private consumers was 4s. 6d. per thousand, and the Gas Company considered that the expense of collecting the amounts of the consumers' bills, bad debts, and discount to the largest consumer in Dublin, was equivalent to the use of lamps, &c., along with the 7d. reduction in the price of the gas made in favour of the Corporation.

That the gas consumers of Dublin have often had reason to deplore the absence of a second or third gas company, is but too well known; but never was that want made more apparent than when the present contract for lighting the public lamps was under consideration in 1876. At that time the Gas

Company had given notice that the price of gas to private consumers would be 4s. 9d. per 1,000, but they not only demanded for the future lighting of the city lamps 4s. 3d. for the gas, but also 9s. per lamp per annum for the maintenance of them, and £2,000 a-year as interest on the cost of the gas mains, &c. By course the Gas Company when making that demand never expected to get it all,

"A little nonsense now and then  
Being relished by the wisest men."

After a few make-believe discussions in the City Hall, during which more or less vapourings were indulged in with the object of misleading such members of the Corporation as did not belong to the gas clique, the matter was treacherously settled as evidently pre-arranged, and on the 18th of November the *Freeman's Journal*, notorious in all matters relating to the gas question for "running with the hare and holding with the hounds," thus announced the terms of the contract about being made:—"The negotiations between the Corporation and the Gas Company were yesterday finally concluded, and in a manner on which, we think, all parties may fairly be congratulated. The terms were altered to 4s. 6d. per 1,000 for gas supplied to private consumers within the city; 4s. 6d. per 1,000 for the gas consumed in the public lamps; and 4s. 6d. per lamp per annum for the maintenance and repairs of them. We think the Corporation may fairly claim the thanks of the general body of consumers in this matter, for it might have made a better bargain for itself alone by leaving the private consumer to the protection of the Citizens' Committee. We are bound to acknowledge the conciliatory disposition evinced by the Gas Company."

As the general body of gas consumers within the city, from former experience, too well knew the meaning of a reduction in the price of gas to be "gulled" by any such spurious statement, and as the Citizens' Committee were too wise to identify themselves with any arrangement that was certain to eventuate in an increase in the amounts of the consumers' gas bills, I will leave this appraisal of that section of the little bit of gas jobbery on the part of the Corporation to stand for what it is worth—which is less than nothing—and show how the Corporation betrayed the interests of the ratepayers whom they (mis-) represented with the object of increasing the profits of that section of it who were shareholders in the Gas Company.

When the Alliance and Consumers' Gas Company in 1866 signed the contract for lighting our streets, they were not in a position to give 10 per cent. dividends to their shareholders, and have, besides, large balances each half-year, as was the case at the termination of it in 1876, when they had the shameless audacity to make this exorbitant demand for lighting the public lamps; nor is it reported that they were required by the Corporation to shew how the terms of that contract were unprofitable. The Corporation, I must admit, did not entertain their demand of £2,000 per annum, as interest on the cost of the rotten, leaking gas mains, &c.,—they would not tolerate that, it being too much of a "choker," but they consented to give 4s. 6d. per thousand for the gas to be consumed in the public lamps for the next three years—3d. more than was demanded, thereby increasing its cost by 7d. per thousand, which for the bulk of gas indicated by the public meters as having passed through them during the following year, amounted to £1,100.—"Oh for a forty-parson power to chaunt thy praise, hypocrisy."

As the charge of 4s. 6d. per lamp, per annum, for the maintenance of the lamps, amounts to an additional £800, it cannot be doubted that the disposition of the Gas Company was "conciliatory;" but how can the ratepayers "fairly be congratulated," on the results obtained for them by the Cork-hill "Home Rulers?"—Yours, &c.,

JAMES KIRBY.

12th September, 1879.



### ROAD-MAKING AND THRESHING MACHINES IN THE EIGHTEENTH CENTURY.

THERE are many people who think that road-making machines are the invention of late in the present century, and that in road-making formerly there was nothing used but manual labour, picks, spades, shovels, a stamper mallet or pounder, and an ordinary roller, drawn by a man, or betimes a horse. The steam roller of our own time, used in making public roads, is pretty generally known now, and it performs its work well if the ground is properly prepared and the materials are well selected. It is not generally known, however, that in the making of public roads in the last century the French road-makers used a machine called "The Pilier." The machine was drawn by four horses, and, by means of mechanism attached, a huge mallet was raised and let fall again, breaking and levelling the stones, which the roller at the hindmost part of the frame passed over and smoothed down as the machine was drawn onward by the horses. Those machines were used in paving streets and roads, and were made of any dimensions, and expense from ten to twenty guineas. We may on another occasion illustrate one of these old road-making machines, and furnish further details of their construction and working. Their use was advocated for Dublin before the close of the last century, but we are unable to ascertain if they were ever introduced and used in this country.

#### AN OLD THRESHING MACHINE.

A machine for threshing, winnowing, and cleaning corn was invented by a Mr. Scott in the last quarter of the eighteenth century, for which he took out a patent. It was boasted of it that, with five or six children, and two or three men, the work of fifty men and a few children was performed by it, so that the labour of forty men was saved by the extensive farmer. When properly worked it was said the threshing machine threshed, winnowed, and cleaned, ready for the market, 100 barrels of corn per day, of which the threshing alone by manual labour would then require fifty men and twenty more for winnowing and cleaning. This by the machine was performed by six children, three men, and four horses, which, estimated at the price of ten or twelve men, showed that the wages of fifty men or upwards was saved every day, ranging from £2 10s. to £5. The price of the machine, was about 100 guineas, exclusive of fitting up in a barn or other building. About the year of 1793-4, one of these threshing machines was used in Ireland by John Latouche, of Harristown, the only one at that date introduced into this country. Their use does not appear to have extended, and many years passed by before threshing by horse and steam power became at all general, and steam power in this country in farming is only used in connection with very large farms.

### THE O'CONNELL MONUMENT.

THE O'Connell Monument has for several years been the theme of public remonstrance and comment. Delays in number have occurred through mistakes, bad management, the death of Foley, and other causes. Statues have been erected in Dublin to men who were beginning their public career when the great Tribune died, and two-and-thirty years have elapsed since O'Connell passed from our midst (and yet forget how many years since the site in Sackville-street was fixed upon), still pedestal nor statue has not yet made its appearance. A special meeting of the O'Connell Monument Committee was held in the Mansion House on the 4th inst., for considering the present position of the work, and to meet Mr. Brock, the sculptor, on whom has devolved the finishing of the work. The meeting was presided over by Alderman M'Cann. For what follows we are indebted to a report in the pages of a daily contemporary, and we on this occasion think it as

well that we should give the report nearly as it stands, as several of the points touched upon by the members of the committee are very suggestive ones, and we may hereafter have occasion to refer to this report—

Mr. Gray, M.P., said when he was in London he had seen the progress that had been made with the statue, and he found that a stage of the work had been reached that authorised the next payment to Mr. Brock. The money was due in July, and he had a certificate from Mr. Armistead as to the state of the work, and authorising the payment of £800.

Dr. Ryan moved that the money be paid to Mr. Brock.

Mr. Murphy, T.C., seconded the motion, and expressed his opinion that the centre of Carlisle Bridge would be a most desirable site for the statue. The motion was adopted.

Father O'Rourke said, as regarded the material for the pedestal, he thought Irish granite would not be suitable. It had been used in the building of the Four Courts, which were erected 100 years ago, and their condition to-day proved how quickly it became disintegrated. In old churchyards throughout the country he found that the granite had become disintegrated, while the limestone was as good as when it left the chisel. Mr. Brock had informed them that he observed a crack in the pedestal of the Albert Monument, and that was the reason why they should take every possible care in the selection of the material to be used. Irish limestone had been called unveneined marble, and he was of opinion it should be employed.

Mr. Brock said the granite of the Grattan and Prince Consort monuments were becoming disintegrated. Was it necessary to use Irish stone? It was for them to decide whether they would allow a feeling of sentiment to stand in the way of obtaining durability. Of course it did not affect his interest what stone was used.

Father O'Hanlon said some of the best and some of the worst stone was found in Ireland. An inferior sort of limestone was obtained from Skerries, but the best was found in Tullamore. Holy Cross Abbey in Tipperary was built of limestone, and, though it had been erected in 1100, the stone was as good as when it came from the hands of the builders. On the coast of Antrim a pure white limestone was found. He (Father O'Hanlon) would like to show Mr. Brock the various specimens of limestone they had in the College of Science. Granite was exceedingly friable, and he did not think it would do even if it were polished.

Alderman Meagher moved—

"That the committee considers that the stone for the monument should be the best Irish limestone, and we recommend Mr. Brock to take steps by advertisement or otherwise to procure tenders for the contract forthwith; and that the trustees and honorary secretaries be authorised to take steps to carry out the necessary arrangements for the purpose of having this portion of the work put into hands without loss of time."

Mr. Gray said Mr. Brock had found considerable difficulty in obtaining tenders for this portion of the work, but he was sure, now that the matter had been put to the country, there would be plenty of tenders.

Father O'Rourke seconded the motion, which was adopted.

Mr. Brock said it would be necessary to settle the quality of the stone before they asked for tenders, as there were so many specimens of limestone.

Alderman Meagher.—It says the best Irish limestone.

Mr. Gray believed it would be advisable to associate Father O'Rourke's name with the selection of the stone.

The suggestion was adopted, and the motion, as amended, was then adopted unanimously.

Mr. M'Dermott wished to hear from Mr. Brock when he expected the statue would be ready for erection.

Mr. Brock said, twelve months ago, when the committee entrusted him with the completion of the work, he informed them that he hoped to have it completed in three years. He saw no reason now to alter that opinion. In fact, his work would be done a little before that. It all depended upon the site and the stone work. The circular relief was complete, and a portion of it was already cast in bronze. He had also nearly finished one of the sitting figures, at the base of the monument, and another was in hands. The statue of O'Connell was itself fairly well advanced. He wished to speak with them about the cloak on the principal figure—the statue of O'Connell. It was generally felt that the cloak was too heavy, and he believed that Mr. Foley himself intended to re-arrange the drapery. In fact, shortly before his death, Mr.

Foley had instructed him to take off the cloak, so that he might re-consider it. Unfortunately Mr. Foley died before that could be done. He (Mr. Brock) would ask them to allow him to do what was best in the matter. It was a difficult matter to follow exactly the sketch, because Foley himself would not have done it, as in such a large work it was requisite to throw more detail into the drapery than was in the sketch.

Mr. Tracey said there was a strong feeling that the monument should, if possible, be finished before the end of next year.

On the motion of Mr. Joseph Sherwood, seconded by Mr. M'Dermott, it was resolved—

"That the trustees and honorary secretaries be authorised and instructed to take immediate steps to have the foundation of the monument built, and to enter into a contract for the purpose."

The Rev. Mr. Doyle moved, and Mr. Gray seconded, that Mr. Brock be authorised to make such alterations in the drapery of the figure as would add to the general effect. The motion was adopted.

Mr. Gray said, with regard to the site, he had been in communication privately with Mr. Doherty, the contractor for the rebuilding of Carlisle Bridge, having obtained a sketch and estimate of the size and weight of the base of the monument, and he found that it would not be feasible to place it in the centre of the bridge. There would be nothing for it to rest upon but the gas and water pipes, which must be carried across that part of the bridge, and besides, it would project a great many feet over the side of the central path. Therefore, the idea of erecting it in the centre of the bridge was impracticable.

### MUNICIPAL MEMS.—SANITARY AND OTHERWISE.

#### FOLEY'S MODELS.

AT the monthly meeting of the Corporation on the 1st inst., the Town Clerk read a letter from the Science and Art Department, stating that they were unable, with the means at their disposal, to repair and send to the Science and Art Museum in Dublin all the casts bequeathed by the late Mr. Foley, R.A., or to provide space for them; that a committee of sculptors had been appointed to make a selection of such as could be put in a state for exhibition for £500; that the Lords Commissioners of her Majesty's Treasury desired to know if the Corporation of Dublin would have any of the statues on the same terms as they will be offered to schools of art—viz., that they should defray the cost of packing and removing them. The matter was referred to the General Purposes Committee, to report whether the Corporation had any power to legally expend money for the purposes in question, and the Science and Art Department are to be asked, in the event of the Corporation bringing over the models, if the branch department in Dublin would take care of them. It was stated that a number of these models had already arrived in Dublin, and that these offered to the Corporation appeared to be those which the Royal Dublin Society refused to have. We would like to know if this is a fact.

#### RATHMINES WATER SUPPLY.

A letter was read at the same meeting from the Town Clerk directing attention to the notice given by the Commissioners of Rathmines and Rathgar of a meeting to be held on the 17th September, to confirm a resolution of the board agreeing to take steps to obtain an act of Parliament to enable the commissioners to execute works to provide an independent supply of water to the district. After some discussion on the bearings of the question, a resolution was adopted to the effect—"That this Corporation is of opinion that it is most undesirable that such a bill should be promoted, especially pending the report of the Royal Commission on Municipal Boundaries. That it deprecates in any case the promotion of a bill instead of a provisional order, which would involve an investigation on the spot when all parties could be represented. That, as owing to a technicality the Corporation may be unable to appear before a Parliamentary Committee, it thinks that those members of the council and citizens generally who are ratepayers of Rathmines should attend the meeting, and press that the bill be abandoned and a provisional order substituted, so that an investigation could be held on the spot, and all parties heard, and that a copy of this resolution be forwarded to the Local Government Board."

#### THE PUBLIC HEALTH OFFICIALS.

A letter was read from the Public Health Committee forwarding sealed order of the Local Government Board, dated 8th August, relative to the duties, appointments and designations of the sanitary



staff of the Dublin Urban Sanitary Authority, and in reference to the same a letter from the Public Health Committee, intimating that the Local Government Board had approved of the change of the Superintendent Medical Officer of Health to that of "Consulting Sanitary Officer," and the Medical Officer of Health to that of "Superintendent Medical Officer," made by the council on the 6th June last. The question was asked whether Dr. Mapother, with the title of Consulting Sanitary Officer, with his £150 a-year, was to have anything to do for his money? The Chairman of the Water-works Committee, in reply said, Dr. Mapother's duties would be anything but nominal. They were duly set out, and part of them would consist of attending the weekly meetings of the committee. He might mention that in his (Mr. Gray's) absence, when this matter had come up before the council, Alderman Gregg had by a motion altered the arrangement of Dr. Cameron's salary settled by the committee. The gross salary of Dr. Cameron was left the same, but his salary as Superintendent Medical Officer of Health had been diminished, and his salary as City Analyst, which the committee proposed to lessen, had been left as before. This change entailed a loss of £100 a-year to the Corporation, as half of the Superintendent Medical Officer of Health's salary would be paid by the Treasury, whereas nothing would be contributed to the City Analyst's salary. It was added that it was now too late to remedy this.

#### A "TENDER" SUBJECT.

On the report of the Financial Committee coming up for confirmation, Mr. M'Evoy called attention to the fact that certain carpets for the Mansion House had been taken by a tender which was not the lowest. The tender accepted was also not precise like most of those rejected. He also found that for advertising notices of municipal revisions and elections 1s. a line had been paid to one Dublin newspaper, while the four others only charged 6d. He thought the Corporation should consider whether they should send advertisements to that paper if it refused to accept them at the rate charged by other papers. He would therefore move that the officers of the Corporation be directed to send advertisements to newspapers only subject to the charge not exceeding 6d. a line. The motion was seconded, but after a disagreeable announcement as to the paper in question it was ruled by the Lord Mayor that Mr. M'Evoy would have to give notice of his motion.

#### THE SANITARY CONDITION OF DUBLIN.

At the adjourned meeting of the Corporation held on the 4th inst., the Town Clerk read the following letter:—

Dublin Castle, 2nd Sept., 1879.

"SIR,—I am directed by the Lord Lieutenant to acquaint you, for the information of the Town Council, that his Grace proposes to appoint a Royal Commission to inquire and report into the sewerage and drainage systems of the City of Dublin and their effect on the sanitary condition thereof. His Grace proposes to entrust the inquiry to Robert Rawlinson, Esq., C.B., C.E., Chief Engineering Inspector of the Local Government Board in England, and Frederick Xavier MacCabe, Esq., Inspector of the Local Government Board in Ireland. His Grace trusts to be able to make such arrangements as will enable the inquiry to be conducted without any expense being thereby entailed upon the City of Dublin.

JAMES LOWTHER.

#### RE CONNOLLY V. THE CORPORATION.

In reference to this claim, a report from the committee of the whole house was brought up for confirmation, proposing that the Local Government Board should be asked whether the payment against the Corporation would be legal. Mr. M'Evoy objected to this course, and said he thought it was destroying the tribunal to which the ratepayers could appeal to be thus anticipating the decision of the board. Mr. Finlay had been asked whether the payment would be legal, and he very properly replied that he would give his decision when the matter came before him as auditor. The whole of this matter in regard to these trees had been conducted in a manner opposed to the legal course and to common sense. The Corporation should have got an estimate of the expense, and if it exceeded £100 an advertisement for contracts should have been inserted. But instead of this a resolution had been passed to carry out the agreement of Mr. Boyle, who, it appeared, had nothing to do with the street, but who was a storekeeper, and connected with the Fire Brigade. He had nothing to do with engineering, and could not be supposed to know what a work like this would cost. The expenses were now £149, but for these the ratepayers could not be held liable. He (Mr. M'Evoy), however, thought that it would be better

that the case should come into a court of law, even though the verdict was to go against the Corporation, so that the conduct of those who were to blame might be exposed. After some discussion the report was adopted.

#### THE WOOD PAVEMENT.

In reference to the crossing at Granby-row, complained of by Mr. M'Dermatt as being still of stone, although the inhabitants were willing to pay the expense of laying down wood, the Lord Mayor explained that the workmen employed to lay down the wood pavement had gone back to England, and that was what caused the delay in laying down the wood crossing, which would necessitate their being brought over again. Goodness gracious! Is it not astounding that such an explanation should be forthcoming? Are there no workmen in the City of Dublin capable of laying or putting down a few yards of wood pavement? Well! well!!

#### THE MAIN DRAINAGE QUESTION.

The following resolution stood in Mr. Gray's name, but stated that when he prepared the resolution the letter of the Chief Secretary given above was not before the house, and that in his opinion that letter changed the condition of affairs:—"That in view of the increased responsibilities imposed upon and facilities conferred upon this Corporation under the Public Health Act (Ireland), 1878; and considering the exceptionally low cost of materials at present, the question of main drainage and purification of the Liffey be referred to a committee of the whole house to meet to-morrow, and sit *de die in diem*, and report immediately to the council as to whether any, and if so, what steps should be taken in the matter." Mr. Gray, however, entered at length into the past history of the exploded Main Drainage Scheme, and other matters with which our readers are conversant. Finally he proposed the following resolution:—"That the letter of the Chief Secretary be acknowledged, with an intimation that the council have received the appointment of the commission with satisfaction; that it be pointed out that except the inquiry be promptly held it will be impossible to take action this session on any recommendations involving legislation that may be made by the commission; but the charge of bringing forward all necessary evidence be entrusted to a committee, with power to employ professional assistance and to obtain such information as to such system of the disposal of sewage and domestic scavenging as it thinks necessary, but that it be an instruction to the committee not to advocate in the name of the council any particular plan, but rather to place the commissioners in possession of all the facts. That the Council Chamber be placed at the disposal of the commission, and that officers be instructed to give all assistance in their power." The motion was unanimously adopted and the committee appointed. We trust that the inquiry on the part of the Government and the action of the Corporation will result with benefit to the citizens, and that large sums will not be expended for professional or any other assistance. At present there is plenty of material available, and without unduly prolonging the work of the commission there are no reasons why the forthcoming inquiry should not be made an exhaustive one. More than enough, perhaps, of witnesses will be forthcoming, but what is wanted is not theories but facts, practical suggestions and practical and reliable information in regard to the sanitary condition of Dublin, and the best plans, economical yet efficient, for improving and preserving the public health.

#### NOTES OF WORKS.

The first stone of a new school-house at Greystones, County Wicklow, was laid on Monday afternoon by W. R. La Touche, Esq., D.L. The plans have been furnished by Mr. James Price, and the work will be carried out by Mr. R. Ludlow, contractor.

The Methodist Chapel, George-street, Limerick, was re-opened on the 7th inst., after thorough remodelling, painting, &c. The works were carried out by a local contractor under the directions of a committee, assisted by Mr. Robert Fogerty, C.E. The cost (including sundry repairs to manse) was nearly £700.

The contractors, Messrs. Wardrop and Sons, have commenced the demolition of the premises in Grafton-street, corner of College-green, formerly occupied by Mr. Madden, and which have lately been purchased by the Commercial Union Assurance Company for re-building. Mr. T. N. Deane is the architect.

#### HOME AND FOREIGN NOTES.

**THOMAS MOORE.**—The memorial window in Bromham Church, Wilts, to the memory of our national poet was unveiled on Saturday last. It has been erected by subscriptions collected by his old friends, Mr. and Mrs. S. G. Hall, who were present at the ceremony. The window was designed and executed by Mr. W. H. Constable, of Cambridge.

**THE NEW REGISTRAR-GENERAL.**—The appointment of Dr. Grimshaw to the office rendered vacant by the decease of Dr. Burke has generally been received with favour. He is certainly qualified for the efficient discharge of the important duties of his office. The salary is £1,000 a-year. We hope the new Registrar will live many years to enjoy the reward he has succeeded to, and that his appointment will result with benefit to the city and the public health.

**TRACTION ENGINES.**—Two traction engine drivers were summoned by the police for driving through Donnybrook in mid-day at the rate of more than two miles an hour. The policeman who brought the charge swore he saw the engine traverse a distance of a quarter of a mile in four minutes. Council representing the drivers made a technical defence, contending that Donnybrook, not being a town, no legal offence was committed, but the magistrate overruled the point, and inflicted a fine of £5 in each case. Two miles an hour is a very slow pace, but caution is necessary at mid-day when heavy traction engines are being driven. Nervous people are very officious folk, official and otherwise will, perhaps, be always plentiful. We wonder what will those class of people think, say, and do when the tram cars will shortly be drawn by steam at more than the rate of eight miles an hour.

#### TO CORRESPONDENTS.

**SANITARY ARCHITECTURE.**—"An Architect" will see that we have touched upon some bearings of the question elsewhere, and we may shortly more fully enlarge upon it, and take cognisance of the matter referred to by our correspondent and some others.

**C. E.**—The idea of providing parallel sewers on either side of Liffey is an old one, and was suggested at the commencement of the present century in Hely Dutton's "Observations on a Statistical Survey of Dublin," by Archer, published under the auspices of the Royal Dublin Society.

**W. C. H. (London).**—To hand, and under consideration.

**"NORTHERN ATHENS."**—The matter, if compressed considerably, would not be the less useful.

**RECEIVED.**—R. C.—Water—P. K.—M. D.—H. H.—Citizen (yes)—C. E. (Glasgow)—J. R.—R. M. D.—R. A.—XX, &c.

#### NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

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CHARLES A. CAMELION, M.D.  
Diplomate in State Medicine, Cambridge University; Professor of Chemistry and Hygiene,  
R.C.S.I.; Medical Officer of Health for Dublin

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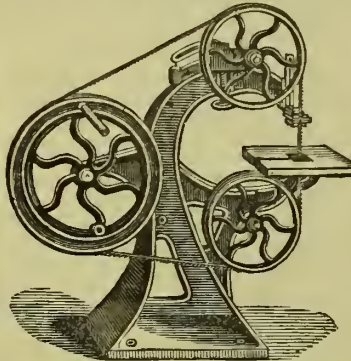
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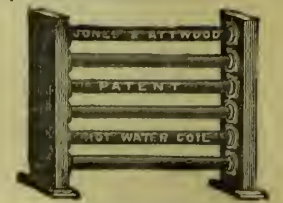
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# Illustration.

DETAILS OF  
ANCIENT BUILDINGS AT ST. DOULOUGH'S,  
COUNTY DUBLIN.

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# THE IRISH BUILDER.

VOL. XXI.—No. 475.

## THE LIFFEY AND DUBLIN HARBOUR— PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.  
FIRST PAPER.

THE paper recently read at the Institution of Civil Engineers (England) by Mr. John Purser Griffith on "The Improvement of the Bar of Dublin Harbour by Artificial Scour," and for which the author was awarded the Manby Premium, is

suggestive of an historical review, dealing with a wider field and embracing several matters which would be out of place in a strictly engineering paper.

The history of the improvement of Dublin Harbour during the last two centuries possesses a deep interest for the archæologist as well as the engineer, for in tracing the modern growth of the port, the reclamation of slob lands, the construction of moles and lighthouses, the embankment of the Liffey, the formation of quays and the erection of bridges, old landmarks once existing are again bared, and old sights and scenes are brought back to the mind, connecting us with times and men of which the present or passing generation would like to know some particulars. The vista is somewhat long and the field a wide one, and we hesitate to commence an historical review which, if conscientiously performed, would entail more time, labour, and space than we could devote to the subject. We will, however, furnish some particulars of the growth and improvement of the Port of Dublin and other matters having a bearing thereon, blending the historical and archæological phases with the

modern engineering one. Authorities, which will be mentioned as we proceed, as well as Mr. Griffith's paper, will be availed of in our papers.

In 1672 a survey of the Harbour of Dublin was made by Sir Bernard de Gomme, but it was with a view to its defence instead of its improvement for shipping purposes. This De Gomme was engineer in general (of the Royal Engineers), and he had been previously employed on the fortifications of Dunkirk. In conjunction with Sir Martan Beckman, De Gomme was also employed in constructing works of defence on the Thames. De Gomme's "Survey of Dublin," with plans and estimates of other ports in this country, were presented to Charles II. in November, 1673. The late Charles Haliday, M.R.I.A., printed a valuable document explanatory of De Gomme's plan and estimate for a citadel at Dublin in 1673. The map, showing the state of the harbour and river at that time, is a very interesting one, and, of course, valuable as presenting us a picture of the unimproved state of the harbour in De Gomme's time. The site chosen for the citadel was close to the space occupied by Merrion Square, but the reader's wonder will be less when he is told that the sea flowed almost to the front of Merrion Square in 1673, and much later. Under these conditions, perhaps, it would have been possible to relieve this citadel by sea, notwithstanding the shallowness of the water at the time. The Liffey, having no embankment, flowed in streams at low water, winding in sundry courses through a labyrinth of sands. The navigation of the Liffey above Ringsend was difficult, for at that time no South Wall was dreamed of. Ringsend in De Gomme's map shows a long and narrow tongue or spit of land projecting into the sea. On its western side, the water spread over all the low ground between Irishtown and that occupied by Beggar's Bush Barrack. By Sir Patrick Dun's Hospital, along the line of the present Denzille-street, Great Brunswick-street to Townsend-street (formerly Lazar's-hill), the sea or tide flowed, the water even reaching College-street and in front of where the Lords' entrance of the Parliament House stands.

As a building, Sir Bernard De Gomme's projected fort in its plan and details is worthy of notice on the part of architectural and engineering readers. It was pentagon in shape, occupying a space of 1,946 yards, with ramparts, ravelins, curtain, and bastions. The walls were to be of brick, faced with stone, resting on a frame of timber and piles. It comprised a barrack for 700 men and officers, with governor's house, and storehouses for munitions of war, a chapel, prison, clock tower, gateway, and bridges similar to those at Tilbury and Portsmouth. The cost was estimated at £131,227 odd. Ringsend was the chief landing-place at the period of De Gomme's design, and indeed for long afterwards, and the place of arrival and departure for lord deputies and their retinue. It was at Ringsend that Oliver Cromwell as Lord Lieutenant landed in the month of August, 1649, with an army, it is said, of 13,000 men, to commence his sanguinary nine months' campaign in Ireland. The direct approach to the city from Ringsend lay across low grounds overflowed by the tide, but passable at low water for man and horse. When full tide flowed, the way lay more inland through the fields of Baggotrath, the site of the pre-

sent Baggot-street, the approaches being through Irishtown, the line of Bath-avenue, and thence through Mount-street and Merrion-square locality to the Castle of Dublin.

When we look at the Pigeon House Fort, the work of the present century, intended for the defence of the harbour, and then look on the plan of De Gomme's Fort and its site at Merrion-square, it is difficult to realise the great reclamations and mighty changes and improvements that have taken place in the City and Harbour of Dublin since De Gomme's time, or indeed since the early years of the eighteenth century. De Gomme's map is entitled, "An Exact Survey of the City of Dublin and part of the Harbour below Ringsend." The map, plan, and estimate was never published, and seems to have been entirely overlooked by local historians, until Mr. Haliday made it the subject of a paper at a meeting of the Royal Irish Academy in 1861.

In 1674, the year after the visit of De Gomme, one Andrew Yarranton, the publisher of some plans for the improvement of harbours in England, came to Dublin. Yarranton's survey of the harbour (rather that of Ringsend) possesses much interest, and must be taken cognisance of in any detailed account of the growth of the Harbour of Dublin. The plan appeared in a treatise entitled, "England's Improvement by Sea and Land to Undo the Dutch without Fighting" (1677). Yarranton informs us that he was "importuned by Lord Mayor Brewster to bestow some time on a survey of the port." Considering it impossible to deepen the water on the bar, Yarranton offered suggestions for an artificial harbour and fort for its defence, on the strand then covered by the tide between Ringsend and the "Town's End-street." The protection of the trade of Dublin was a subject at the time engaging the public attention, particularly as a French privateer had entered the bay, capturing and carrying off a Spanish ship from near the bar of the river. The plans of De Gomme and Yarranton, although not carried out, had the good effect of directing more particular attention to the improvement of the Port of Dublin, for then, and for many years after, the trade was carried on by vessels of fifty to one hundred tons burden. In 1676, one Henry Howard petitioned the Lord Lieutenant that a patent might be granted to him pursuant to the King's letter, which he had obtained for establishing a ballast office. There was no corporate or other body at this time intrusted with the conservancy of the Liffey, and especially empowered to raise ballast. The Lord Mayor and citizens opposed the granting of a patent to Howard, taking their stand on the charter of King John, which gave to them the strand of the river where ballast should be raised, and they, therefore, prayed that permission to establish a ballast office might be granted to them, agreeing to apply the profits to the maintenance of the King's Hospital (since and now known as the Blue Coat Hospital). Neither Howard's petition nor that of the Lord Mayor and citizens was granted by the Lord Lieutenant. The Corporation of Dublin at the time appears to have been really anxious to improve the port, and, as a proof of their earnestness, they petitioned the House of Commons in 1698, stating that "the river had become so shallow, and the channel so uncertain, that neither barques nor lighters of any burden could get up



except at spring tides, much merchandise being unloaded at Ringsend, and thence carted up to Dublin, and they, therefore, prayed that they might be permitted to establish a ballast office. On this petition the "heads of a bill" were prepared and transmitted to England, conformable with Poyning's law, but the bill "was stopped in England by some persons there (as was alleged), who endeavoured to get a grant from the Admiralty for the benefit of the chest at Chatham." Haliday holds that the opposition more likely originated in some jealousy respecting the Admiralty jurisdiction of the port, the Lord Mayor being "Admiral of Dublin," over which the Lord High Admiral of England claimed to be supreme. This obstacle was at length removed in 1708, when, by an act of the sixth Queen Anne, the Dublin Ballast Office was created, "for although," writes Haliday, "there was no clause to that effect inserted in the bill, the city had privately promised the Prince Consort, Prince George of Denmark, then Lord High Admiral of England, an annual tribute 'of one hundred yards of the best Holland duck sail cloth, which shall be made in the realm of Ireland,' and this tribute was for a time regularly sent to London, and on one occasion when it was omitted, it was formally demanded by the Admiralty, and then forwarded by the Corporation."

From the establishment of the Ballast Office in 1708, in pursuance of the Act of the Irish Parliament vesting the conservancy of the port in the Corporation, the real improvement of the port may be said to date. The passing of the act was the first step to a reform, but the first *bonâ fide* improvement was the formation of a straight channel from the city to Ringsend in 1711. In 1713 the Ballast Office procured the services of Captain John Perry, who had been previously engaged at Dover and Daggenham beach in the Thames. Although he suggested plans by which it was thought that the depth of the water might be increased, that task was then considered so hopeless, that to render the port fit for vessels drawing even 12 ft. of water, it was proposed to construct an artificial harbour near Ringsend. One engineer suggested that this harbour should be accessible by a ship canal along the southern shore, and another proposing that the canal should be from Dalkey or Kingstown (old Dunleary), so that the crossing of the bar might be altogether avoided.

The high-water mark was once the "Town's End-street" on one side of the Liffey, and the "North Strand" on the other. "And a curious illustration of the state of the harbour," observes Haliday, "is found in the fact that during the storm of 1670 the tide flowed up to the College, and, at a later period, that a collier was wrecked where Sir Patrick Dun's Hospital now stands."

The work of making a straight channel from the city to Ringsend in 1711 is briefly described in Mr. Griffith's paper. It was bounded on the north side by a bank of timber-work and stones, while on the south side a masonry wall was begun. These boundaries were nearly identical with the lines of the present north and south quays. While this work was proceeding, a more important one was commenced, that of constructing a jetty of frames and piles extending from Ringsend to site of the present Pigeon House Fort, a distance of 7,938 ft., and

thence for a length of 9,816 ft. to the eastern spit of the South Bull. This work, as indicated, had for its object the directing of the river in a straight channel to the sea, the sheltering of the channel in south-easterly gales, and preventing the encroachment of the sand from the North Bull. Regular dredging operations were also commenced in the channel, for the two-fold purpose of supplying ballast for the ships and improving the navigation. The construction of the timber jetty appears to have made rather slow progress, as powers were sought by the Corporation in 1729 to raise £3,000 for the completion of the piling. An old hulk was sunk in 1730 to protect the eastern end of the frames, and in 1735 a floating light-ship was moored there. The maintenance of this timber framework was soon found to be expensive, and an imperfect shelter, even if efficiently maintained. About 1748, the first length of this timber jetty from Ringsend to the Pigeon House was replaced by a double line of rubble retaining walls with a filling of sand between, and in 1761 the work was begun of replacing the second length to the eastward of the Pigeon House; the first operation being the construction of the present Poolbeg Light-house, from the design of Mr. Smith (some authorities say of his wife).

We are pushing on towards the eighteenth century, and out to sea, too fast, forgetting almost those great changes and improvements that took place in the upward reaches of the river during the eighteenth century—the old Custom House and its surroundings, the state of the Liffey and its quays, when the vessels that were capable of sailing up the river, discharged their cargo or loaded between the site of old Essex Bridge and that older one, which was truly entitled to its name of the "Old Bridge," as it was the first and the only one which for centuries had spanned the Liffey. Of these and kindred matters we will have something to say in our next paper.

#### ST. PAUL'S CATHEDRAL GARDEN.

On the afternoon of 22nd ult., the Church-yard of St. Paul's, which has been laid out as a garden by the Corporation, at a cost of £5,000, was formally opened to the public by the Lord Mayor in the presence of the sheriffs, the officers of the Corporation, and the members of the Coal, Corn, and Finance Committee, who had been entrusted with the carrying out of the scheme of improvement. Subsequently, in the course of some speeches made at a *déjeuner* in the Guildhall, it was stated that a granite fountain will find a place in the new garden; that the iron-rails, by the lowering of the stonework on which they stand, will allow the juvenile population from the outside to obtain glimpses over the top of the masonry of the turf and shrubs. The Corporation have special rights and privileges in connection with the Cathedral, and the maintenance of the garden in a proper condition will, it is said, entail an expenditure of £400 a-year. The principal honours were accorded to Mr. Stapelton, a member of the Corporation, for the leading part he took in the new improvement. Mr. Bedford, another member, who actively interested himself in the preservation of Epping Forest, had also his services recognised. The laying out of city graveyards as public gardens is a most commendable proceeding, and we are glad to see that during the last few years in London and other places much progress has been made in that healthful direction. It is now many years since we urgently advocated the laying out and opening of the old disused churchyards in Dublin, as well as of the public squares of the city. In a few instances improvements have

taken place, but much still remains to be done north and south of the Liffey.

#### SUGGESTIONS FOR YOUNG BUILDERS.

PART V.

(Continued from page 282.)

We have been favoured with some letters of enquiry through the editor, which we hope to reply to as these suggestions proceed; but in one of these the writer kindly informs us that we are wrong as to the manufacture of Indian ink, and that the best ink comes from China. Whilst thanking him for his information, and acknowledging the probability of our being in error as to the locality where it is made, we deny any error as to where it is sold. Another enquirer wishes to know what we would suggest as pocket companions in addition to the piece of indiarubber. In reply, we beg to inform the gentleman that for many years we carried what we believe are known as Brunel tubular or pocket compasses, the points of which fold in, having ink and pencil attached, which when not in use remain in the tubes. These compasses we had to renew from time to time from, the joints becoming loose, four or five years being about the length of their utility. About fifteen years ago we purchased a Geneva Napier pocket compass, and it is as good as when it left Simonton's shop in Grafton-street; it occupies very little space, being  $2\frac{1}{2}$  by  $\frac{1}{2}$  by  $\frac{1}{2}$  in., and has needle points with pen and pencil, each double-ended and reversible, one end being formed with a very minute point merely sufficient to catch the paper, the needle filed to present a stop all round, the other being the ordinary needle point. This little instrument has often served us in country hotels to draw a map or plan, being in itself a divider, drawing pen, and ink or pencil compass. We also carry a 12-inch ivory rule, folded in four, having inner bevelled edges, and every division of the inch requisite—in fact we have just counted their number, and find there are thirteen!—so that with a Napier compass, a 12-inch rule, and a pencil, one need never be surprised.

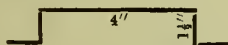
There are many situations in which the apprentice or assistant, or the principal himself, may require to prepare plans for an emergency when at a distance from home. We have found the following a most useful box in lieu of a portmanteau, viz., either of wood or tin—the latter preferable—30 in. by 15 in. by 6 in. inside measurement; a space  $2\frac{1}{2}$  in. in width and of the whole length and depth partitioned off will hold drawing and tracing papers, straight edge and beam compass, station pointers, drawing instruments, and colours; in the lid may be secured a small flat T-square, set squares, curves, &c.; by having two brass or steel clamps you can secure a straight edge to any table, and work against it with your flat square; you can also have a stock and blade of hard wood, that with a strong clamp and washer will form a square to use in the ordinary way; the remaining space of the box will hold an ample supply of clothes, and the dimensions we have given are such as will admit of being stowed away under the seat of a railway carriage. The box, if tin, will be the better of brass corners and a couple of leather straps. N.B.—Should you go on the Continent, never forget to bring one or two cakes of soap!

For some years past we have had the paper in our note-books ruled with horizontal and vertical faint blue lines quarter of an inch apart. We are aware that books somewhat similarly ruled are to be had; but for many reasons—such as size, shape, and nature of the ruling—we prefer our own. Many things of this kind fail by being made by people not skilled in the technical knowledge of the wants they would endeavour to assist; ruling in spaces to scale is one of these mistakes. The horizontal and vertical lines are a great assistance in many ways; but no one would dream of endeavouring to count the number



of squares in, say, 23 ft. and 9 in., or any other dimension, in measuring a building, when the figures could be noted with the rapidity of shorthand, and little or no liability to error. We have a book before us as we write, purchased in some shop in London; it is ruled in faint neutral tint to an eighth of an inch, every 8 ft. being distinguished by a darker line,—but why eight and not ten, we are at a loss to know; it opens like an ordinary primer, without a pencil-holder, has a stiff back, and is most inconvenient as a note-book, although no doubt the maker thought he was producing something useful. Whilst on the subject of such, we may say we have never seen a good book for land surveyors who work from the bottom of the page; and, by the way, we saw in some periodical instructions for land surveying attempted by a tyro, who exhibited his knowledge of the subject by working from the top of the page! The instructions never reached a second number! Elastic bands are very useful to note-books to hold the pages on a windy day, but unfortunately the elastic gets very soon stretched and becomes useless.

There is a description of drawing board which we omitted to mention when treating of those articles, it being particularly designed for India and changeable climates, and not often seen here. It should be made of very well-seasoned yellow pine, having attached at the back four pieces of white Norway deal, memel, or beech, truly planed and laid in pairs, within 6 in. of the ends of a 42-in. board; these should be secured by solid, well-made brass clamps, three to each, which, although gripping the cleets, firmly adroit of their sliding on each other, their sectional shape being—



each foot secured to the board by two brass screws, whilst one screw secures the alternate ends of the slips, thus admitting of a contraction and expansion without any warping or winding. A plain sawn edge is to be preferred in this case to timber clamping, if truly planed and shot. An inserted edging of brass is a desideratum.

It sometimes happens that maps require to be mounted on cloth, as also architectural plans and sections of railways, for exhibition in law courts and before public boards and parliamentary committees. The size of the map or plan must determine the quality of the calico. If this be too large for a large drawing board, the floor of an empty room should be had. We mounted the survey of a large estate on the floors of an empty house in Merion-square. The calico must be laid down evenly and very tightly with small nails (6-8 cut tacks), much of the success of the operation depending on this. Have an ample supply of paste, well made, of the best and first-class pastrycook's flour, without alum or resin, as neither would be favourable to the colouring of the plan. This should be thoroughly worked into the paper with a pound or half-pound brush, each portion folded on itself and left to soak. When laid down and nearly dry, it should be carefully sponged over with clean water wherever admissible. If it is required to varnish the work, it will be necessary to size it thoroughly, for which purpose isinglass is the readiest; but if this cannot be had conveniently, a few old white kid gloves boiled down will be found an excellent substitute. At least two coatings of size should be laid on. The best varnish for paper is Canada balsam and turpentine, as we described for making tracing paper, only that as a varnish the proportions may be about 1 part of balsam to 2 of the oil of turpentine. Care should be taken to perform the operation in a room free of dust.

Landscape gardeners and others requiring large plans for exhibition on emperor paper can strengthen the edges with narrow stripes of calico or tape, laid down by passing a moderately warm flat iron over blotting paper between it and the tape. Emperor is

a very large and soft paper, very good for many purposes, but not adapted for erasing, so that the drawing should be perfected in pencil before any colouring or inking is attempted. If the surface is disturbed it cannot be restored, but a sizing of isinglass may be resorted to with good effect.

In making fair copies of specifications and other writings, slight errors will occur with the most careful; in such cases erasure with a sharp penknife can be well made with a little practice, the slower the erasure and lighter the pressure on the blade the better. Keep by you a small muslin bag, the size of a cherry, full of resin in impalpable powder; pass this over the erasure, and you can write on it with impunity. Always, if possible, use good linen, hand-made paper, of pot or foolscap size, and write with a quill pen,—the whiter the paper the better the writing will look: blue papers and steel pens are an abomination! To use inferior paper for any purpose is a mistake and false economy, and better work will invariably issue from an office supplied with first-class stationery. Original drafts, every pencil mark on which are of value, should be carefully preserved; they are the record of the thoughts of the artist or designer, and in after years can tell their tale of "reasons why" long forgotten. Why, then, for these should rubbishy cart-ridge paper be chosen?

Many years ago a popular architect had some houses in progress, which he, being of a saving or economical turn, had designed on lapping paper and in pencil. A worthy citizen purchased one of the houses; and as he wished to shew his relatives what he had bought, asked the architect to lend him the plans. As these appeared too rough to exhibit to his *dilettante* friends, he got the author to copy them, directing him to make the drawings look well, and to be careful as to all details, &c. When the plans were made, they were submitted to the architect for his approval, and tracings of them attached to the deed of conveyance, which was duly executed; but that worthy citizen insisted on every tittle shewn in these drawings being carried out. It was in vain that the architect attempted to explain his intentions, in vain he pleaded that his drawings were mere sketches, and that he regarded our finished works as pictures to shew the friends of the purchaser. So much for pencil sketches on tea paper. Had the drawings in the first instance been produced respectably and properly, much disappointment, loss, and consequent heartburning would have been saved.

It is difficult to estimate the number of curious demands that may from time to time be made on a young man's ingenuity. We will relate one in illustration. Some years ago we were superintending work on a rock many miles at sea, and had with us some good workmen—viz., carpenters, masons, and a blacksmith. Intercourse with the mainland was difficult and seldom. Although well supplied with a stock of useful articles and tools of all sorts, by some remote chance a measuring rod had been forgotten, and its want served to shew the difficulty of obtaining a reliable measure of length. Every workman had a boxwood rule, but no two rules would agree. We had a French *mètre* in green and an English yard in white ivory, also several ivory scales, from all of which we deduced and formed on the rock a standard 12 ft. in length, which after experience proved to be correct. The question was of what material to make the rod, and yellow pine was decided on. This we determined to steam and bake before forming; and a piece 2½ in. square and 13 ft. in length was cut *en brut*. Our stove was made of cast-iron down pipes joined to the required length and filled with water, in which the rough stick was immersed, the ends of the pipe plugged, and the whole supported over a fire till steam was got up sufficient to drive out the plugs and effectually do the business. The pipe was then emptied, dried, and the timber again inserted, the ends loosely plugged, and the stove slowly turned over

the fire till the smell of timber burning gave warning that the *brut* was sufficiently "done." It was then left to the joiner, who planed it and brought it to size. We then carefully marked off the divisions, forming the numbers with iron wire, each being made red hot and laid for an instant on the wood. As we wished to preserve the ends, the smith was directed to braze copper ferrules for that purpose; but as he had no notion of how the operation of hard soldering was performed, we gladdened his heart by working the oracle for him, and completed our standard rod; and would here impress on our young friends that Norway white deal or yellow pine treated by steaming and baking is impervious to ordinary changes of temperature.

(To be continued.)

## THINGS NOT GENERALLY KNOWN.

That the house in Cavendish-row on the left side as you enter a lane, long occupied by the late Sir John Kingston James, the last Lord Mayor of the old Corporation, was the one built for the residence of Dr. Bartholomew Mosse, the worthy founder of the Rotundo Lying-in Hospital.

That "perketee"—i.e., parquetry—floors were laid in the last century in old Tyrone House, off Marlborough-street, of which mansion, Richard Castles, the designer of several of our noblemen's houses in the city and provinces, was the architect.

That the "toll house" at the foot of Clarke's Bridge, on the Royal Canal, was formerly a public house of some note, and was known as "the Fingal Tavern," kept by one Reynolds, before it was transformed back into a private dwelling. What was the cause—was the license revoked, or did the owner "mend his line and sin no more?"

*Apropos*, that the row of houses forming a right angle on the opposite side of the above bridge, built about 1816, and known for many years respectively as Edward-terrace and Sackville-garden, had a middle top window in each house, built up within, though the sashes and glass panes appeared in their place when looked at from without, but the glass lacked the usual transparency. Were these blind panes the result of household economy and the pressure of a once obnoxious window tax?

That in the early days of the present century, and shortly after the passing of the Act of Union, the building trades of Dublin were sorely depressed, and the building operatives reduced in a few years from several thousands to a few hundreds, even in single branches of trade, and that on one occasion a large number of unemployed and emigrating carpenters walked in a line down Sackville-street, exhibiting each a thin long deal or pine shaving, ribbon-like, flying from their hats.

That the hill of Drumcondra on the city side of the Tolka was cut through to form a level roadway, when John Foster was Speaker of the Irish House of Commons, and that the County Dublin is greatly indebted to the same speaker for the interest he took in that road and the work thereon mentioned.

That Dorset-street (formerly Drumcondra-lane) was called after the Duke of Dorset, the Viceroy, and a liberal patron of Dublin theatricals in the last century; and that Thomas Elrington, of Smock-alley, the chief ornament of the Irish stage in his day, died at his residence in Drumcondra-lane; and that subsequently Thomas Sheridan, actor, stage manager, elocutionist, lexicographer, and dramatic and general author, also lived for some time in Dorset-street.

Pendant to the above—That in the reign of George I. some of the Huguenots of Dublin, who were great lovers of flowers and gardening, formed themselves into a club, called the "Florists' Club," for the purpose of furthering the cultivation of flowers in Ireland. Their meetings were for several years



held at the Rose Tavern, in Drumcondra-lane (now Dorset-street), where, according to more than one authority, they adjudged premiums to the members who produced the most beautiful flowers to the club on given days. And that this club existed till the close of the reign of George II. The Rose Tavern was still in being about the commencement of the present century. Can anyone point out the site of the original Rose Tavern of the Dublin Huguenots?

That archery butts existed early in the last century on a piece of ground known as Cunningham's Rope Walk, North Strand; and that this was the last spot in Dublin where the regular practice of archery was witnessed, the practice being supported in its decline by a body of gentlemen and eminent citizens who called themselves "The Archers' Club." That the last member of this club was a Mr. Henry Delemain, who lived on to an advanced age, and died in 1781. And, finally, that the sheaf of arrows which belonged to this club was once in the possession of Joseph Cooper Walker, the antiquary, who deposited one of them in the Museum of the Royal Irish Academy during his lifetime, and who described them as made of asp-wood, and about 27 in. long.

That several of the trade bodies of Dublin were, in the early part of the present century, in the habit of holding their council or committee meetings on certain Sunday mornings and other stated mornings in the open air in quiet green laues and secluded suburban retreats. That these meetings died out shortly after the establishment of the present police system; and that the whitesmiths, in the opinion of the present writer, were the last, or one of the last, who held these open-air Sunday morning meetings, and that their resort was an old green lane in Goosegreen, now known as Hocy's-lane, from a farmer of that name who built a house and out-offices there about the year 1815-16. Query, were these quiet, secluded, suburban trade meetings the result of the Combination laws, which pressed severely on trade bodies and their action in the last and in the earlier part of the present century?

That the names of Henry Charles Sirr and Philip Dixon Hardy appear in our old Dublin Directories as wine merchants; the former at 35 French-street, and the latter at 20 Great Longford-street. That the first name appears as stated in 1796, if not earlier, and the second in 1818, if not further back. Can there be any doubt existing that the above Henry Charles Sirr was of '98 memory, and the once redoubtable Town Major of Dublin, and that the wine merchant of Longford-street was the afterwards well-known author, printer, and publisher, Philip Dixon Hardy, of Cecilia-street and Sackville-street, who died on New Year's Day, 1875, a full octogenarian?

That some of our Dublin architects in the last century called themselves "projectors," and that the majority of our architects in Ireland in that century, and the earlier part of the present, were builders and contractors, and that still, both in the sister kingdom as well as in this country, the great majority of the houses erected every year are not architects', but builders' and workmen's designed and built houses.

That we have in our midst some "scampering" architects, as well as builders and workmen, and that the bad examples of the former are worse than the bad practices of the latter. That as the receiver is to the thief, so is the tempter to the criminal, though the really victimised in building matters is a third party or outsider.

That the compositor to whom was entrusted, in January, 1837, the putting into type the first pages of the manuscript of Charles Lever's "Harry Lorrequer," and who made a blunder by printing the name "Lovesque," is still alive. He hailed from the "Land o' Cakes" about half a century ago, and, although surrounded by his children

and grandchildren, he is *still young*, and can enjoy a hearty laugh over the doings on "The Walk" in the days of "auld lang syne." There is another "old boy" also living in this city who was said to have had a hand (or foot) in arranging the fuel by which on an unlucky New Year's Night poor Lever's "Charles O'Malley" sheets were consumed at Folds's. Can any octogenarian reader say if he was the "devil" who handed Lever

"The scrap of note-paper, just saved from the flames"?

That the "stone of rudo appearance" that was to be seen some years since in the chancel of old St. James's Church, bearing the inscription—"This monument was erected by Mark Rainsford, of the City of Dublin, Alderman, 1693," was put up by the afterwards Sir Mark Rainsford, Lord Mayor in 1701, whose name appears on the pedestal of the equestrian statue of William III., erected in the last-named year, and that of the mayoralty of Rainsford. That also one of the two sheriffs of that year, John Eccles, whose name is on the same pedestal, was the Sir John Eccles whose property of two houses in Great Britain-street formed an endowment by Archbishop King for the support of a lecturer for Little or Old George's Church in Lower Temple-street, which church was erected towards the close of the seventeenth century.

That Nottingham-street, North Strand (erst Mud Island, and afterwards partially Spring Gardens), was a street of one house, dating from 1792; but that the street has lately become "Nottingham House," and the tablet that originally told a truth prospectively is now disguised to tell a lie plausibly, to please somebody and murder local history.

#### "PUT A NICK IN THE POST."

An old miser got ill,  
And he did a good deed,  
For a sum in his will  
For the Church was decreed.  
When the news spread about,  
It scared like a ghost,  
And the bishop bawled out,  
"Put a nick in the post!"

When a baker made bread  
That the people could eat,  
And a butcher in dread  
Sold cheap and good meat,  
Though misgiving, well pleased  
Was the housewife almost,  
And the news she appraised  
By a nick in the post.

When a grocer sold teas  
And a publican beer—  
Not a semblance of these,  
But pure and not dear,—  
There were calls to rejoice  
And the many to boast.  
Quoth the poor, with one voice,  
"Put a nick in the post!"

When a doctor most kind  
Lost a patient long ill,  
And then made up his mind  
That he'd cancel his bill,  
The young widow sobb'd "Thanks";  
And her friends a whole host,  
In and out of the ranks,  
Put their nicks in the post.

When an old lawyer mourn'd  
What his client could see,  
And undefending, returned  
To his victim his fee,  
Mighty bonfires were made  
Which illum'd the coast,  
And nigh everyone said,  
"Put a nick in the post!"

When a "Jerry" built house  
Of the usual plan,  
Downright with a souse  
Killed a fat alderman,  
And at last came a sign  
That the builder would roast,  
In the Press was this line—  
"Put a nick in the post!"

JACK PLANE.

College of Science, St. Stephen's-green,  
Michaelmas Day.

#### TEWKESBURY ABBEY "RESTORATION."

THE re-opening ceremony took place on the 23rd ult., and the work of restoration, says one paper, "has been successfully carried out, and has consisted chiefly in clearing away plaster and whitewash, and making good all defects in the stonework." Tewkesbury Abbey is a large cruciform building with massive Norman tower rising from the centre; the tower is richly arcaded, and a remarkable western front, the central part of which is occupied by one vast arch reaching from the ground to the roof. Internally there are great columns and lofty arches in the nave, with very low ones in the choir, reminding the visitor, it is said, of Gloucester and Pershore. The vaulted ceilings have been restored and decorated. The chapels and the old chapter house have had less attention paid to them. The flooring of the nave has been lowered to its ancient level, and that of the choir paved with coloured tiles. The chapter house has been restored by the Gloucester Freemasons, and was specially opened on the 25th ult. The cost of the works of restoration to the present has been upwards of £10,000, and £5,000 more is still needed to complete other untouched works.

#### THE GRAPHIC LINERS OF DUBLIN.

WHETHER a house comes down with a "tremendous crash," or a warehouse is consumed by the "devouring element," and the forked flames "illumine tho sky with a lurid light," the liners of some of our morning journals are equal to the situation. True, they lack the audaciously inventivo powers of your Yankee reporters; but what of that—the Dublin liner is wonderfully strong in "spinning it out," and reeling it home. The fall of the houses in Grafton-street and Moss-street were subjects that called for lining energy, particularly the former, and the advantage was availed of. What could be compressed into a "stick" of matter was made to expand into columns; and, as this is not the Parliamentary season, we do not grudge the liner his profits, or his employer his greater circulation. But this apart, let us have sense instead of nonsense, and truth instead of fiction. Let reason exert its sway, and imagination be curbed from running in riot. If a house falls and a beam of timber drops on a particular place where nobody was standing, what need the public be told "had anyone being where the beam fell they would have been killed on the spot." This is something akin to "if the sky should fall we all could catch larks." There are good reporters on the Irish Press, and this country has contributed several excellent ones to the London Press, Parliamentary and ordinary; but still in Dublin we have young and old liners who appear unable to get out of the groove that was in fashion half a century ago, when we were wont to read of the "light fantastic toe," and read descriptions of dinners, balls, and other festive gatherings interspersed with a number of very hackneyed French and Latin phrases. We thought Dublin newspaper reporters had grown out of these baby rags long since, but we appear to be mistaken. We suppose an Irishman is nothing if he is not eloquent, but eloquence is out of place if a spade is called by any other name. It is now many years since we read the following bit of lining in an American newspaper, descriptive of a man's feelings when chased by a mad bull:—"The bull roared like thunder, and I flew like lightning, and in leaping over the ditch as fast as the stars fell from the galaxy, I tore my breeches as though heaven and earth were coming together." The noise that the man's breeches made when rent was somewhat akin to the noise made by the falling house in Grafton-street, taking the Dublin graphic liners' account of that catastrophe.



# DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.\*

## LECTURE III.

(Continued from page 287.)

For the purpose of these lectures we must assume that it is necessary to have a sufficient supply of water that is fit to drink for all uses. The obvious characters of a good drinking water are that it is clear, transparent and colourless, without taste (that is to say, neither salt nor sweet), and without smell, that it has no suspended particles in it, and produces no deposit on standing, and that it is aerated; but a water may possess all these characteristics and yet be unfit to drink, by reason of dissolved matters which cannot be detected except by chemical analysis, but the existence of which may often be suspected from a knowledge of the history of the water. Waters are commonly divided into hard waters and soft waters. Hard waters are those which contain a considerable quantity of mineral salts, especially salts of lime, in solution; soft waters those which contain much smaller quantities of these substances. Very hard waters are unfit for domestic purposes. A deposit of mineral matters takes place in the supply pipes, &c., and they get blocked up. Such very hard waters, too, are not desirable either for drinking or for domestic purposes generally. Moderately hard waters appear to be as wholesome as soft waters for drinking purposes. The Registrar-General has shown that the death-rate, in towns supplied with moderately hard water, does not differ sensibly from that of a series of towns supplied with soft water, but in other respects similar in their sanitary arrangements. Nevertheless, animals in their natural state prefer soft water to hard, and those who have the care of horses always give them soft water to drink if possible. An undoubted disadvantage that attends the use of hard water for domestic purposes consists in the enormous waste of soap that it entails. In order to wash with soap, it is necessary to produce lather. Now, the mineral salts in hard water decompose the soap, and form insoluble compounds, so that solution of the soap in water which will form a lather does not take place until the lime, &c., in the water has been deposited as insoluble lime-soap, &c. Thus the more salts of lime and other mineral matters are present in the water, the more soap is wasted before the formation of a lather. This can be easily illustrated by a simple experiment. If we take a sample of distilled water, which contains no mineral matters in solution, and add a certain measure of an alcoholic solution of soap to it—when we shake the bottle in which it is, a lather is immediately produced and remains for some time; but when we take the same quantity of another sample of water, and add the soap solution to it, we find that it requires, in this instance, about twenty times as much of the solution to form a lather. Soft water then, on the whole, must be preferred to hard for domestic purposes, and when the water is very hard it ought to be softened before being distributed. This may be done by Clark's process, which consists in adding milk of lime to the water as long as a precipitate is formed. The rationale of this is that most of the hard waters contain considerable quantities of carbonate of lime, which is held in solution in the water by the means of free carbonic acid. The lime added as milk of lime combines with the free carbonic acid, forming more carbonate of lime, which, together with the carbonate previously in solution, is deposited, being almost entirely insoluble in water. As it is deposited, it carries down with it any suspended matters that may be in the water, and so leaves the water clearer and purer. A practical difficulty in the carrying out of this process, arising from the length of time required for the precipitate to subside, has been overcome by a process of filtration de-

vised by Mr. Porter, and known as the "Porter-Clark process." Water after being distributed may be softened to a considerable extent on a small scale by boiling, when the carbonic acid gas is thrown off, and the carbonate of lime deposited. It is this which causes the incrustation of boilers. The boiling also helps to purify the water in other ways, and it is a very good plan to use boiled water, either when the water is very hard, or when there is any suspicion of impurity, both for drinking and for domestic purposes generally. It may be aerated by allowing it to fall from a height from one vessel into another. The average quantity of water required in a community is generally put down at from 30 to 35 gallons per head daily. Of these, from 20 to 25 are required for household purposes (including waste), where baths and water-closets have to be supplied, and ten or more are necessary for washing the streets, for flushing the sewers, and for trade purposes.

The important sources of water are:—(1.) Rain collected directly. This is of course very soft water, and in country places very pure. In towns it is rendered impure by the substances that it washes out of the air, and must be filtered before it is used, but it is everywhere an important and valuable source of soft water which is far too much neglected. It ought to be collected and used for domestic purposes, and wherever there is any suspicion as to the quality of the water supplied from other sources, rain-water should (especially in the country) be used for drinking. It may be filtered through sand, gravel, or charcoal by means of very simple contrivances.

(2.) Water is often obtained from shallow wells dug in the soil, down to a little below the level of the subsoil water. These, of course, drain the soil around for a greater or less distance, and the water in them frequently becomes contaminated by foul matters from leaky sewers, cesspools, &c., especially in pervious soils. Persons should therefore always be suspicious of the quality of water derived from shallow wells, for frequently, even when bright and sparkling, it is highly contaminated.

(3.) Springs and small streams are often used to provide supplies of water, and very pure water is obtained in this way, although it is sometimes rather hard. It is either conveyed directly to the town by means of aqueducts or pipes, after the Roman plan, or collected from a gathering ground into large impounding reservoirs, and thence taken in pipes to the place to be supplied.

(4.) The water of large rivers is now frequently used as a source of supply. It is received in settling basins or reservoirs, where a deposit takes place, then filtered through beds of sand and gravel, and afterwards distributed. Most of the river water is contaminated in various ways during its passage through towns; and, without entering further into the subject here, I would merely say that it is better to obtain water that has not been contaminated, than to take water which we know has been contaminated, and then try to purify it.

(5.) Water is sometimes obtained from pervious water-bearing strata, at a considerable depth below the surface of the ground, by boring into them through the impervious strata which lie over them, and through which the water cannot penetrate. Wells with such borings from the bottom of them are known as artesian wells, from having been first generally used in the French province of Artois. The water contained in such water-bearing strata is supplied by the rain which falls on the outcrop of these strata, often at a considerable distance, and frequently, as in London and Paris, on the hills around. This water percolates through the pervious rocks, and so gets beneath the impervious strata which lie over them after they have disappeared beneath the surface, and, being retained there under pressure, rises through borings made into the rock in which it is, through the impervious strata lying over it. This water, then, is generally, as may be expected, very pure, although it is

frequently, especially if derived from the chalk, very hard. Occasionally, as in some wells bored into the New Red Sandstone, it contains too much common salt to be fit for domestic purposes, which will not be wondered at when we consider that the largest deposits of salt we have, from which enormous quantities are obtained, are in the New Red Sandstone formation.

However the water is obtained, it is distributed to the houses in one of two ways, either by intermittent or by constant service. With the system of intermittent service, the water is turned on into the houses once or twice in the 24 hours for a short period each time. It is, therefore, necessary to have cisterns, butts, tanks, or receptacles of some kind to keep the water in during the intervals. In these, deposit occurs of the suspended matters contained in the water, and dust accumulates, especially if they are not covered, or if the covers are broken, and so the water is rendered impure. They also usually have a waste or overflow pipe, which is frequently connected with the sewers or with some part of the water-closet apparatus, and by means of which foul air finds its way into the cistern and contaminates the water. During the intervals, too, when the mains are not charged with water, foul water and foul air find their way from the soil around through leaky joints, and contaminate the water when it is next turned on, so that it frequently happens that the first water that comes into the cistern when it is turned on is quite unfit to drink. There is an enormous amount of loss with this system, which might, however, in great part be prevented. The last disadvantage of the intermittent supply lies in the fact that some delay is frequently experienced in obtaining water for extinguishing fires.

With the system of constant service, on the other hand, the pipes are always full, and so it is not necessary to have cisterns, or receptacles of any kind for the storage of drinking water, although this is frequently done. Receptacles are, however, necessary for the supply of water to closets. The pipes being always full of water under pressure, are far more likely to leak out into the soil than to be contaminated with foul matters from the soil. Still, it is not advisable on any account that water-pipes should be carried near to sewers or other sources of contamination. The water is fresher, and purer, and cooler in summer when supplied on the constant service system. The pipes are full in case of fire, and the inspection of pipes, taps, and other fittings is, as a matter of fact, carried on very much better, and less waste of water takes place under this system (although the pipes are always charged) than under the other system. It is obvious that, unless there were very strict supervision, a great waste of water would necessarily accompany the use of the constant system. For this reason also, the water companies that have adopted that system will not allow waste pipes from cisterns to be connected with the sewers, or closet apparatus, but insist on their discharging freely in the open air; and usually in some place where any waste water running out of them would produce annoyance, so that it would be speedily noticed, and the cause of the waste remedied. It is very important, however, where this system is adopted, that there should be double reservoirs or tanks, in order that one may be used while the other is being cleared out, for if, as has been the case at some places, and notably at Croydon, the water be supplied by the intermittent system of service for a few days, defects which have produced no inconvenient results while the constant system of supply was practised (such as the connections of water-closet hoppers directly with the main water-pipes), the possibility of the existence of leaky joints in the mains, through which foul matters may enter from the soil, &c., may produce the gravest results by spreading enteric fever throughout the community; and here I may mention that it is, of course, extremely improper and very dangerous to convert a cistern which is

\* By Prof W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.



used to supply drinking-water, or a water-supply pipe, directly with the hopper of a water-closet. The system of constant service is coming gradually into more general use, and it is very probable that water-meters will be much more generally used than they are at present. The pipes, by means of which the supply of water is conveyed into the houses from the mains, are usually made of lead; this material being preferred on account of its durability, and the facility with which it can be bent in various directions. A disadvantage of it is, that certain waters attack and dissolve lead, and are thereby rendered more or less poisonous. Those, however, are chiefly pure and soft waters. Waters containing mineral salts in solution, such as those generally supplied for drinking purposes, scarcely attack lead at all; and moreover, with waters which do attack lead, the surface of the metal becomes covered with an insoluble coating of oxide and carbonate, which protects it from further attack. Pipes made of lead lined with a thin layer of tin are sometimes used, but when the tin becomes damaged in any way, a galvanic action is set up, and the lead is dissolved quicker than ever.

The receptacles used for storing drinking water are made of various materials. Lead cisterns have long been frequently used on account of their durability. They are open to the same objections as lead pipes, although from the fact that no mischief has been found to result from the use of lead pipes and cisterns at Glasgow, since it has been supplied with Loch Katrine water, which is exceedingly soft, it appears probable that the ill-effects from the use of lead in this way have been exaggerated. Galvanised iron cisterns are fast taking the place of leaden ones. They are very durable, and of course far cheaper than lead. Stone or even brick-work lined with cement are sometimes used at or below the ground level for the storage of water, and are open to no objections so far as the material is concerned. Stoneware cisterns are now made, and are admirably suited for cottages, for use in basement floors, &c. Slate cisterns are not infrequently used for upper stories, as well as ground floors. Of course, slate in itself is an excellent material for such a purpose, but slate cisterns, unfortunately, are very apt to leak after a time, and the joints are then filled in with red lead from the inside of the cistern—a practice which is, of course, very objectionable. The use of wooden receptacles, such as tubs, butts, &c., ought to be discouraged, if only because they are difficult to be kept cleansed. All receptacles of water should be well covered, in order that dust may be kept out of them. Nevertheless, ventilation space between the water and the cover, by means of holes provided with a grating, at the sides, is advisable.

(To be continued.)

#### ANTIQUITIES OF FINGAL.\*

By JOHN S. SLOANE, Architect, M. Inst. C.E.I.

NO. I.—ST. DOULOUGH'S.

(Continued from page 291.)

THE assistance which can be had from pictures of some localities as to fixing the dates of erection or alteration is altogether wanting in St. Douglough's. The oldest view extant is that of Gabriel Beranger in 1766; it is so accurate in many respects that some reliance should be placed on it, and, if so, the lower portion of the wall under east window was in ruin, and there was no central mullion at that date; the small window over it would appear to be set in newly-repaired masonry. Hooper's illustration in Grose's Antiquities of 5th November, 1790, shows the great east window as it is now, but without the smaller window; it also gives a leaden spire on the tower. The view in Ledwich's "Antiquities of Ireland," published in 1792, shows a similar ruin in the east window, and a great breach

agreeing with the repaired portion in that by Beranger. This view is in many respects very indifferent, gives no south window, and places the entrance to graveyard at west end of building; and although illustrating the book, may have been made many years antecedent to its publication.

To determine dates from the style of portions of a building will often result in error, as will also the supposition as to square-headed doorways being mere ancient than arched; much depends on the material of the locality, a square lintel, where it can be had, being less troublesome than any other, and occupying less space. But in connection with these there may be other matters that will point out to a certain age or date,—for instance, the small doorway built up in south-east corner was used anterior to the piscina being placed in its position; in no view that I have seen is this doorway shown. The eastern wall is recessed  $4\frac{1}{2}$  in., which corresponds with the line of jamb of this "priest's" doorway, which was exceedingly narrow, being only 1 ft.  $9\frac{1}{2}$  in. in width. The space for piscina which occupies the upper portion of doorway is 20 in. by 15 in. and by  $10\frac{1}{2}$  in. deep. Another recess immediately under the south-east window, measuring 24 in. by 24 in. to the springing of the arch, which has a rise from chord line of 5 in., may have been for a lavatory, under the curious zig-zag stairs which lead in the thickness of the wall past the south window to apartments above, is a recess answering somewhat to the "waking bier" on other side; it is a pointed arch of 6 ft. span and  $4\frac{1}{2}$  ft. to the apex.

The building generally is out of square, and some of it—for instance, the lower portion of tower wall, in which is the south window—is considerably out of line or not parallel with others. Ordinary hasty measurements would not detect this, but it may support the supposition that the building is the result of many periods of erection. It is not improbable that early in the last century this "cryptical chapel," as Dr. Ledwich calls it, was repaired for the purposes of a parish church, as in his quotation from "an anonymous, though well-informed author, who in 1747 published a 'Concise Survey of the Ecclesiastical State of Dublin and its Diocese,'" we find that "The steeple is still up, as is also the church, which is now much smaller than formerly. Divine service is performed there once a fortnight, and the tithes belong to the chapter of Christ Church." There is no means of arriving at the site of any other church for Balgriffin parish, and although I believe there is traditionally supposed to have been a glebe and house, all reference to its position has been lost. When in the building, the high pitch of the roofs, the acuteness at which the angles meet, the curiously honey-suckled appearance of the stonework, the more soluble portions of which have been dissolved, and the structure generally, points to a much more remote antiquity than the windows indicate; but it would be difficult indeed to suppose that a style was employed in the construction of these, some centuries before a similar style had been introduced in England. I mention this because I am aware that some are of opinion that the building was the work of the Ostmen or Danes in the ninth century, and some consider it a similar building and coeval with Cormac's Chapel on the Rock of Cashel, to which it bears not the slightest similarity, excepting that both have stone roofs. In Cormac's Chapel there is a perfect nave and chancel, with chancel arch. The Irish style of architecture partaking somewhat of the Norman character, is fully and beautifully developed. In Cormac's Chapel the visitor will look in vain for pointed architecture, and on the other hand there are no arcades in St. Douglough's, no sculptured capitals, corbel heads, or chevron mouldings; both are unique specimens in their way, but both totally different. One would think it hardly possible that any person could look at the semi-cylindrical vault of Cormac's Chapel with its broad belts or liernes, and at the pointed and naked vault of St. Douglough's,

and ascribe one and the other to the same date; but such has been the case, and writers have perpetuated the falsehoods of their imaginations in enduring histories.

Of the windows, I think I am safe in saying that there is not an original one left. The southern are of an early decorated style, without hoods. The largest west window is small and of two lights; the eastern window, the mullions and dressings of which are of soft sandstone, is evidently the most modern in the building, and although shown in ruin by Beranger in his view, may have been repaired about 1745, as the place appears to have been occasionally used in 1747 for divine worship. The small east window is in good preservation, and was probably inserted about that time, and in repairing the west window we availed of it as a pattern. The remains of the trefoil ornament over the west window was left where I found it, but I much doubt whether it was its original position, or that its being a trefoil was not the result of the accidental grouping of two portions of tracery; they are sandstone pockmarked and honeycombed with the weather, whereas the one jamb remaining, and which has been preserved, was of limestone.

At the distance of 170 ft. north by east from the tower is the baptistery and well; it stands in the centre of an octagonal court or atrium, sunk  $5\frac{1}{2}$  ft. below the surface of the surrounding field. The principal sides face the cardinal points, and the light in this case (contrary to masonic custom) appears to have been expected from the north. Access is gained by a flight of steps from the south, and in the centre stands the little octagonal building, surmounting and protecting the well. In the interior, to which you descend by two steps, is the well, surrounded by a massive curb of limestone of 26 in. inner diameter and 6 in. in thickness; the second placed there in our memory. The interior is circular, and roofed by a carefully-finished spherical vault; there are three deep recesses in the walls, and over each and the door a panel in which it is said there were formerly paintings. In Doctor Ledwich's book he quotes as before the anonymous writer for a description of this well and little building as follows:—"Near this church is a well of most lucid and delightful water, enclosed and arched over, and formerly embellished at the expense of Peter Fagan, brother of John Fagan, Esq., of Feltrim,\* with decorations of painting and gilding. The Descent of the Holy Ghost on the Apostles is represented on the top, and the effigies of St. Patrick, St. Columba, and St. Bridget, as also of St. Doulach in a hermit's habit. On the walls was the following inscription engraved on a marble stone:—

"Piscinæ Solymis claræ decus efferat alter  
Et medicas populus jacet Hebræus aquas  
Grata Deo patrium celebrat Fingallia fontem  
Dulachi precibus munera nacta piis  
Morbo ille fugat promptus viresque reponit  
Ægris et causas mille salutis habet  
Scilicet æquus agit mediis Doulachus in undis  
Angelus ut fontem sic movet ille suum  
O fons noster amor! si te negleximus olim  
Mox erit, ut nomen sit super astra tuum."†

I have made enquiries about this slab, but cannot learn either what became of it or where it stood.

Balgriffin is not a genial soil for antiquities. With the exception of the St. Douglough buildings, there is not a trace of anything ancient in the parish. D'Alton, in his usual

\* Peter Fagan died without issue, and was youngest son of Richard, mentioned in an old song on the Siege of Derry:—  
..... Fagan of Feltrim with Fingal  
His cavalry united.

† Was part of the plan that Lord Strabane  
Should give his neighbours warning;  
But they packed him off with a shot and a scoff,  
His hollow council scorning," &c.

† Ledwich gives this translation:—  
Bethsada's sacred pool let others tell  
With healing virtue how her waters swell.  
An equal glory shall Fingallia claim,  
Nor be less grateful for her blissful stream.  
Thy prayers, Doulachus, mounted up to Heaven;  
Thence to thy well the mighty power is given  
To drive the fury fever far away,  
Strength to replace and rescue from decay,  
In every malady to life a stay.  
The cherub, wondrous, moves his wat'ry sphere,  
The saint behold who stirs the fountain here,  
Hail, lovely fount! if long unsung thy name,  
It hence shall rise above the starry frame."

\* See statement of a paper read before the St. Patrick's Society for the Study of Ecclesiology; with additions of a later date.



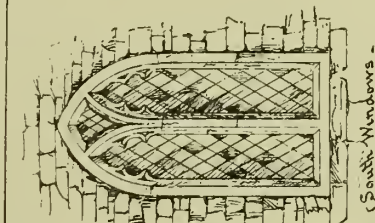
Laidlech cain clochair. AD. 600.

- ANCIENT BUILDINGS AT -  
- ST DOULAGH'S -  
C<sup>O</sup> DUBLIN.

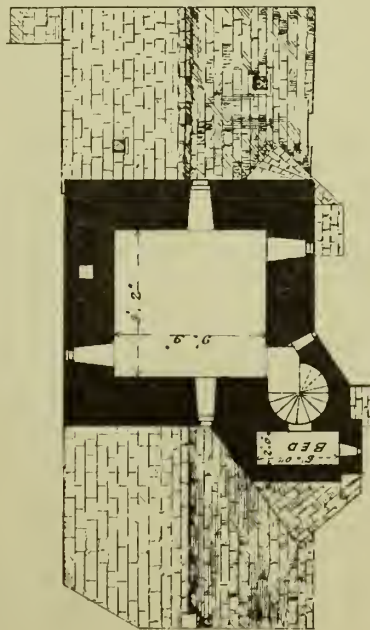
- WEST END -



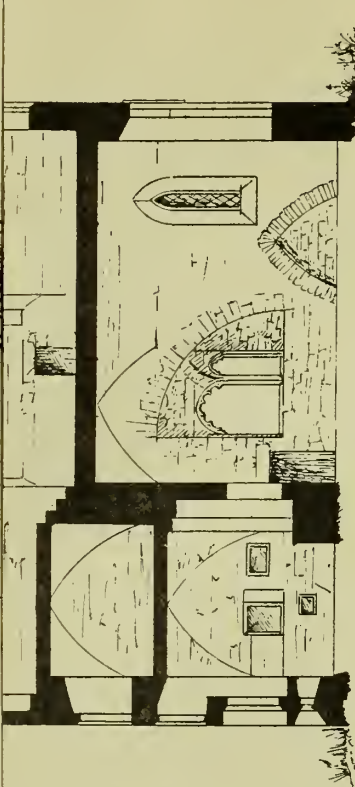
East Window



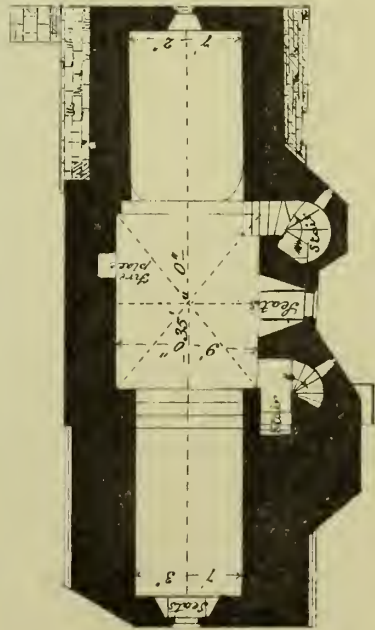
South Window



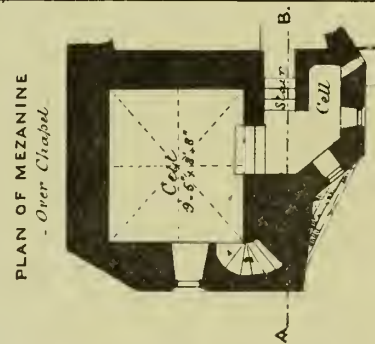
PLAN OF TOWER & ROOF.



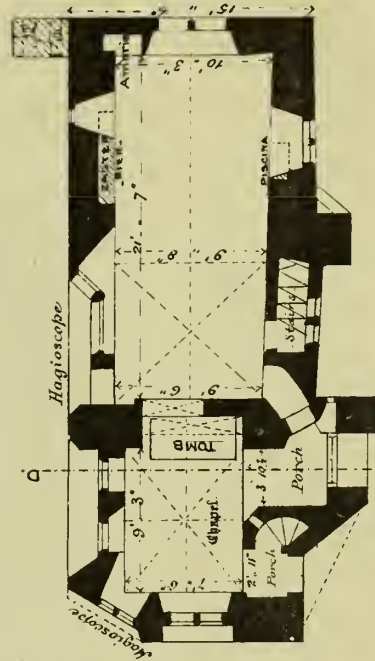
- LONGITUDINAL SECTION -



PLAN OF SECOND STORY.



PLAN OF MEZANINE  
- Over Chapel



GROUND PLAN.

SCALE

50 feet

John S. Sloane Del.



la dunlech cain clochair. AD. 600.

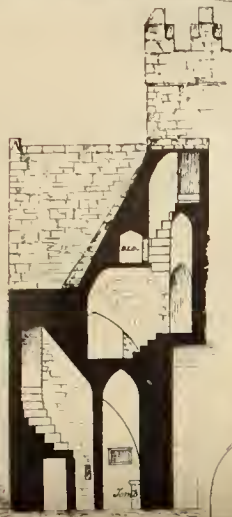
ANCIENT BUILDINGS AT  
ST DOULAGH'S  
CP DUBLIN.

Plans Sections &c. from measurements  
by John S. Sloane.

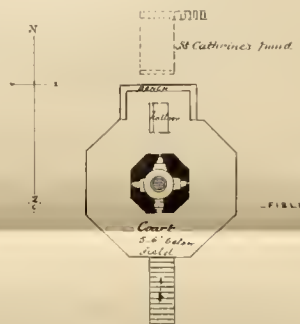
WEST END.



BAPTISTRY.



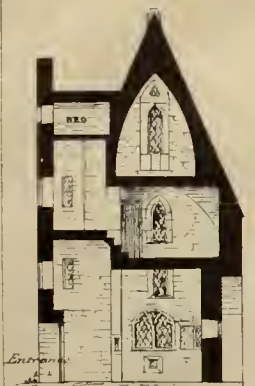
SECTION ON LINE. A. B.



PLAN OF WELL AND BAPTISTRY.



EAST END.



SECTION ON LINE. C. D.



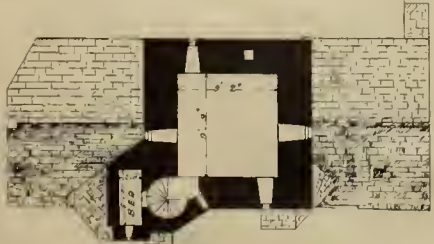
Fragment of Discina.



East Window.



South Windows.



PLAN OF TOWER & ROOF.



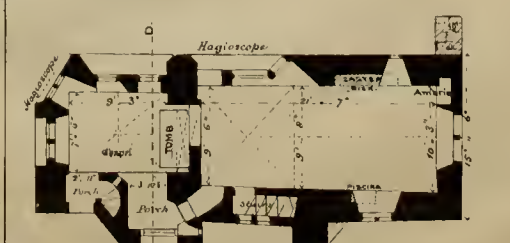
LONGITUDINAL SECTION.



PLAN OF SECOND STORY.



PLAN OF MEZZANINE  
Over Chapel.



GROUND PLAN.

SCALE

50 feet

John S. Sloane Del.



unreliable manner, speaks of the church of Balgriffin, and of some obscure traces of the edifice being (in 1838) still observable; also that in 1814 the Board of First Fruits lent £900 towards building the glebe-house, and gave £400 for the same object. Reading this in D'Alton's "History of the County Dublin," a late incumbent of St. Douglough's called on the author, but he could give him no information on the subject nor any authority as to there having ever been a glebe-house,—in fact, his account was chiefly but a garbled and unacknowledged quotation from Ledwich. He, however, appears to have noticed the singularity of the flight of stairs at south window, for he says:—"The steps are each an irregular triangle, and placed alternately so as to occupy only the breadth of one step as usually placed, by which the ascent is accomplished in half the usual space." But to return to the well.

The northern portion of the court forms three sides of a square, and in the space between it and the well is a hollow 5 ft. 9 in. in length by 3 ft. 2 in. in breadth and about 2 ft. in depth, having along one side a step or bench, and three steps at south end. This space was, and I believe is, occasionally filled from a periodical rising or overflow of the well. The general arrangement of this court can leave no doubt on the mind as to its uses, nor can the most superficial observer fail in being impressed with its evident antiquity.

This court is the most ancient of those remains so thickly crowded into one small space; and, beginning with this atrium, we have firstly the three-sided end, and its bench and hollow place; secondly, the octagonal building and square-headed doorway; and, thirdly, the section of the oratory with its tower and adjoining buildings, and the probable addition of the second portion with lancet-headed window to the little octagon structure over the well.

The court, with its well, three-sided end, and hollow place, appears to have been the original place of baptism of the early Christians of Fingal, which sacred rite was performed by St. Patrick and his follower Douglough. We have undisturbed in uncemented masonry the step at the side of the hollow place on which the apostle stood, the seats on which the catechumens sat awaiting their call and witnessing the introduction into that communion by whose teaching they hoped to obtain salvation, whilst the atrium was filled with converts and those who, coming to scoff, might perchance remain to pray.

In the octagonal building we have a distinct mark of another period and state of things. All the adult inhabitants have been converted to Christianity, and children are in future to receive baptism. The hollow place is no longer required, but the memory of its uses and the veneration for those who administered them cause it to be carefully preserved.

The well is now surrounded by an octagonal enclosure symbolical of its use, and becomes the natural font of the district (for in those days one font was considered sufficient for a district or diocese, to which at Easter and Whitsuntide, and such other times as might be appointed, children were brought for baptism). On the Continent some of these baptisteries were circular, having octagonal fonts within them, as at Florence, and so large that in after ages they were used as churches.

In Fingal St. Douglough appears to have lived; at this well and in its neighbourhood he is supposed to have laboured in his holy mission, and naturally near the scene of his labours he is buried. In the cell in which he lived a tomb is erected, and men frequent the spot hallowed by the recollections attached to it. The cell or oratory is increased by additions to the size of a collegio or monastery, the oratory being of course the chapel of the building, and, as was customary, the tomb became the altar; and in the thirteenth century—just one hundred years after Henry II. made over the Irish Church to the Pope—the building is completed. Thus we

have evidence of the several eras. The court formed in the fifth century (450) for the baptism of converts on the north side of Dublin (the well called St. Patrick's being used for the Dhugallians of the southern district), enclosed by the octagonal building in the eighth or ninth century, and the second storey added in the eleventh; the cell or oratory enlarged in the thirteenth, for the reception of six or more recluses or monks; in the seventeenth century the refectory or common room is converted into a chapel, the well adorned with painting and gilding, and a slab with an inscription by Peter Fagan, of Feltrim, in the eighteenth, which pictures and slab have long since been stolen or destroyed, and the well and its precincts left ruinous, as a not unusual evidence of the apathy and total want of taste of the *Fingallians* of the nineteenth.

Immediately adjoining the court on the north is a vault 12 ft. by 6 ft., and 6½ ft. high, called St. Catherine's pond, the use of which is now lost in obscurity. The entrance is through a small pointed doorway 4 ft. 6 in. by 1 ft. 6 in., and it is lighted by a loophole at each end. It was probably a bath for the use of persons afflicted with cutaneous diseases, for the cure of which the waters were considered to have a certain efficacy.

It would not be easy to find a better subject than the buildings at St. Douglough's for the correct measuring and delineation of which to offer a prize to architectural students, and I take this opportunity of suggesting the matter to the proprietor of the IRISH BUILDER or the council of the Royal Institute of Architects, British or Irish.

(To be continued.)

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

THERE is a book before us the subject of which is suggestive of controversy, though already marked by it to a considerable extent. The title runs—"An Original Collection of the Poems of Ossian, Orran Ulin, and other Bards who flourished in that Age. Collected and edited by Hugh and John McCallum. Montrose: Printed at the Review Newspaper Office, for the Editors, by James Watt, Bookseller. 1816." To those who are at all acquainted with the subject it will be at once anticipated that the book deals with the Ossian of MacPherson, but our purpose is not to enter at length into that very vexed question, but to make a few running remarks, as the book in question is at the present hour not widely known, and also because it is a somewhat curious one. The book is "Dedicated (by Permission) to His Royal Highness the Duke of York, President, and other Noble and Illustrious Members of the Highland Society of London." The preface, which is a pretty long one, is mostly devoted to a defence of MacPherson against the severe strictures of Doctor Johnson and Mr. Malcolm Laing, regarding the authenticity of Ossian's poems. The book appears to have been well pushed by the editors among their countrymen, for there is a list of subscribers in double columns running to the extent of nearly sixty pages—a very remarkable list of names indeed, of "nobles, gentles," and, perhaps, "simples." As Dr. Johnson in his journey to the Hebrides roughly handled the Scotch, and "laid on" MacPherson rather unmercifully, the McCallums return the compliment in not sparing the doctor. Johnson believed that Ossian's poems, as given by MacPherson, never existed in any other form. That the editor or author never could show the original, nor could it be shown by any others, that he (MacPherson) had doubtless inserted names that circulated in popular stories, "and may have translated some wandering ballads, if any can be found; and the names, and some of the images, being recollected, make an inaccurate auditor imagine, by the help of Caledonian bigotry, that he has formerly heard the whole." This language was too much for the feelings of the Messrs. McCallum, who reply—"That

the editor could never show the original is asserted directly in the face of facts. MacPherson, even before the translation made its appearance, published proposals for printing by subscription the originals; but finding no encouragement, he contented himself with leaving a copy of the archetype some months in the bookseller's shop for the inspection of the public; and when the *Temora* came out, the original of the seventh book was given as a specimen of the Gaelic language." Johnson taunted MacPherson of having found "by some peculiar fortune an unwritten language written which the natives probably never beheld." The McCallums answer—"As for Mr. MacPherson to hold forth that part of the poem has been received by him in the Saxon character, it was no 'peculiar fortune'; there are a considerable number of Gaelic Bibles at this day printed in the Saxon character throughout the Highlands. The editors of these sheets have one of them; these characters are still extant in writing, much more so at the period that Mr. MacPherson compiled his edition of the poems of Ossian. Sir James Ware (in the 'Antiquities of Ireland') informs us that the Saxons, having no alphabet of their own, borrowed the old British letters from the Irish, when, after their conversion, they flocked to that kingdom for education. Camden, p. 1318, inclines to the same opinion. What seems to put it beyond a doubt is that the Saxon character is similar in Scotland at this day. The doctor, therefore, discovers his ignorance in upbraiding Mr. MacPherson with finding an unwritten language which the natives never beheld, since it was the common one they were acquainted with." Johnson was certainly not well qualified for pronouncing an opinion on Irish or Scotch Gaelic, and, despite his varied information and wide experience, he was extremely dogmatic. There can be no doubt but he heartily hated the Scotch; yet how strange that his boon companion, flatterer, and biographer, should be a Scotchman. The following observations of the dictatorial doctor were sufficient to raise the bile of any Scotchman:—"I have yet supposed no imposture but in the publisher, yet am far from certainty that some translations have not been lately made that may now be obtruded as parts of the original work. Credulity on one part is a strong temptation to deceit on the other, especially to deceit of which no personal injury is the consequence, and which flatters the author with his own ingenuity. The Scots have something to plead for their easy reception of an improbable fiction; they are seduced by their fondness for their supposed ancestors. A Scotchman must be a very sturdy moralist who does not love Scotland better than truth; he will always love it better than inquiry; and, if falsehood flatters his vanity, will not be very diligent to detect it. To be ignorant is painful; but it is dangerous to quiet our uneasiness by the delusive opiate of hasty credulity." The McCallums held that Johnson was a "bigoted sage," and as to the orthography of the Gaelic language, he knew nothing about it; and that he was the first, and probably would be the last who travelled in search of records which he could not read, though he attempted to criticise a language of which he did not understand a syllable. Indeed Johnson confessed that—"Of the Gaelic language I understood nothing. I cannot say more than I have been told; it is the rude speech of a barbarous people, who had few thoughts to express, and were content, as they conceived grossly, to be grossly understood." As Johnson allowed the Irish to be a cultivated tongue, MacPherson's defenders could not conceive how he could refuse some degree of improvement to the Gaelic, since it was a dialect of the same language. "Behold," exclaims Hugh and John McCallum, "this extraordinary man [Johnson] on his journey in quest of barbarism! and at length sitting down wearied and discontented, because he has met with some degree of civility in the most desert parts; or, to speak more



properly, because he has found nothing more barbarous than himself." "Twas too much to tell Sandy that he loved Scotia better than truth. That Dr. Johnson generally told the truth in controversy, we will not have the hardihood to assert.

*Appropos*, the defence of MacPherson against the attack of Laing was rather a tough task for Hugh and John M'Callum, but they consider themselves equal to the difficulty. Laing marshalled his detections into eight general heads, under which are presented numerous smaller detections, all which tended to strip MacPherson's Ossian of all pretensions to antiquity. Indeed Laing hesitated not to say that MacPherson himself was not only the author, but publicly avowed it. Laing held that the poems were not of a remote date, on account of the many modern terms they contain, and the similarity of numerous passages to the writings of ancient and modern poets. That as religion is essential to epic poetry, the silence of Ossian's compositions in this respect is a strong proof against their authenticity. He gives it, too, as a historical fact, that there was not a Highlander in Scotland of the present race at the beginning of the era assigned to Fingal, and Irish historians are quoted. We cannot follow Laing in detail, or the M'Callums in reply. There are very strong assertions on both sides, and the defenders of MacPherson used very strong language. Pinkerton, too, the historian, comes in for a heavy endgelling for what he advanced concerning Ossian and Caledonia:—"Some passages of which were sufficient to excite aversion in a kral of Hottentots." Hot words, in sooth, Messrs. M'Callum, but not less spicy are those with which you deal your farewell blows to poor Pinkerton:—"In his nauseous tract we decline to follow, for even here victory were disgrace, and the laurels like those acquired in wrestling with a chimney sweep. Therefore, we shall allow his arguments regarding the Highlanders to remain a venomous bog of filthy slanders, a monument of derision and contempt to succeeding ages."

The preface of Hugh and John M'Callum is a literary curiosity as a whole, and as a contribution to the discussion bearing upon Ossian it has some value, but it would be rather difficult to define its exact amount.

We may appropriately conclude our Ossianic observations by some remarks of Sir Samuel Ferguson in one of the notes to his poem of "Congal," 1872:—"MacPherson has been grievously ill-used both by assailants and defenders; but worse by the latter, who (possibly including himself) lie under a grave suspicion of having fabricated Gaelic equivalents for some of his finest English ideas, rather than admit his English to have had no Gaelic original. He would not confess that his originals had been helped, expurgated of puerilities and vulgarities, marshalled into a coherent, though erroneous, sequence of events, and exalted throughout by the infusion of his own pervading grandeur of thought. To this extent, he loved Scotland better than truth; but the candid enquirer will add, better also than fame for himself. When I see the conventional contempt in which this poet is now held, especially by Irish writers whose own Ossianic fragments have been vulgarised by transmission through channels far more corrupting than the pure and high-toned Highland tradition that gave his material to MacPherson—see the Dean of Lismore's charming book, *passim*,—I am tempted to exclaim, in the words of D'Arcy M'Gee—

"O, clear-eyed Poets, ye who can descry,  
Through vulgar heaps of dead, where heroes lie;  
Ye to whose glance the primal mist is clear,  
Behold there lies a slaughtered Noble here."

MacPherson has indeed been very ill-used by defenders as well as assailants; but as he grievously sinned and died without repenting, his merits otherwise are likely to remain long unacknowledged by the many. His version of Ossian is full of beauties, but beauties entirely his own, and not the creations of the ancient bard. In many things,

we fear, this is a cold, calculating, and unfeeling world. Men and women fall away from the path of virtue, and their sins are often condoned. Is literary forgery like MacPherson's, full of genius and self-denial, a greater sin than that which corrupts the body and the mind? We do not palliate nor uphold neither, but we would desire to see critics discriminating between offences and crime, and tempering justice with mercy when an erring and gifted intellect lies under a cloud.

A very instructive and interesting volume might be written on the extinct trades and industries of Ireland, or on those trades and industries which were rife during the era of the Irish Parliament, but which have since died out. Several manufactures completely died out before the close of the first half of the present century, and others are in a decaying state. Pianoforte or harpsichord making was for a while a flourishing trade in Dublin, but within the last forty or fifty years the trade consists of importing, selling, and repairing. Ireland contributed to the perfection of the modern piano in the person of Southwell, an Irishman, who improved on the upright piano of Handcock, and gave it the name of the cabinet piano; but since Southwell's time several other makers have further perfected the instrument as regards sound, though externally the case of the piano is still susceptible of much improvement in design and execution. We are not aware that there is at present, or has been for several years past, a single manufacturer of the piano in this city, though organ building has of late years revived and progressed. Builders' ironmongery was manufactured to some extent in Dublin within our own memory, but at present, with the exception of comparatively few articles, all our builders' ironmongery is imported from England. We have some brass-founding, iron-founding, metal-casting, and bell-founding in this city, and we see no reason why there could not be a revival of several of the branches that produce builders' and cabinetmakers' ironmongery. Our coach building trade to some extent still exists, but coachmaking is not what it once was in this city, a most flourishing native industry, giving employment to numerous workmen.

Agricultural implements are manufactured in Dublin, and in other Irish cities and towns; but, like native coachbuilding and iron founding in general, agricultural implement-making with us is not widely extended. The Irish lock-making trade has dwindled down to a shadow, though we have plenty of jobbing locksmiths, who repair locks, hang bells, and do gasfitting jobs. House-makers with us are many, and, we fear, house-breakers too; and lock-breaking is more general than lock-making or efficient mending, so far as our itinerant artisans are concerned. We have numerous fine quarries of granite, marble, sandstone, limestone, and other building and ornamental stones; and we quarry these stones in various counties, but not half so extensively as we might. We manufacture some bricks, too; but, after all, the amount, as compared with our wants, is comparatively small, and the best of our native bricks are open to much improvement in the preparation of the clays and the burning of the bricks. It would be tedious, however, to enumerate all our decayed or vegetating trades; but, alas! there are two industries flourishing and of great and growing magnitude in our midst—brewing and distilling. When these trades become somewhat decayed by a change in the habits, manners, and tastes of the people, there is no doubt that more useful and beneficial industries will take their place. We do not preach a war of extermination to brewing and distilling, but we do preach with all our heart industry and sobriety. Without these latter, Irish artisans cannot improve their position; but with these and the spread of education, elementary and technical, Irish employers and workmen will be mutually benefited, and their common country will rapidly add to the number of its new and revived industries. H.

## CLONTARF.

CONSIDERABLE progress has been made in the formation of a company to provide bathing accommodation in this township. Three or four preliminary meetings have been held, and a deputation or committee appointed, who have waited on and conferred with the engineer.

The design which we have seen embraces all that is considered requisite in the most approved bathing establishments at home, on the Continent, or in America. It is elliptical on plan, the diameters being in the proportion of 1500 to 9500, and will be amply large for swimming and all the purposes of *ecoles de natation*. The least average depth of water will be 9 ft. at neap and 13 ft. at spring tides, with shallows for young persons and those who cannot swim. The ladies' bath has a surface of 80 ft. by 35 ft., containing about 151,000 gallons, with 20 dressing-closets, and hot and cold baths, waiting-room, lavatory, &c. The men's bath is much larger, and will average 450,000 gallons, with hot and cold baths, and 50 dressing-closets, &c.

It is proposed to use concrete largely in the construction, the products of the excavation going a long way in the formation of the walling, breakwater, &c., and Mr. Sloane provides for using Lascelles' patent concrete slabs in the construction of all the dressing and bath rooms.

On Friday, the 12th ult., a meeting of gentlemen favourable to the undertaking was held in the Boat Club, with Gibson Black, Esq., J.P., in the chair. Several names were received as applicants for shares, and a conversation ensued in which Mr. Sloane's views were discussed, and the general opinion appeared to be that the township was fortunate in having a marine engineer of such experience amongst its inhabitants.

The want of a suitable bathing-place is severely felt in Dublin; and the facilities by tram car for reaching Clontarf and Dollymount are such that there is no doubt that the proposed company, by erecting a suitable establishment, will secure a handsome dividend on their outlay. No time should be lost in taking the necessary steps for the formation of the company, and setting Mr. Sloane to work. The capital will be about £2,000, in shares of £1 each, of which nearly all are applied for, the engineer taking his fees in shares.

## PAUPERS' LUXURIES.

WE cull the following from a report in the *Leinster Express* of the doings at a recent meeting of the guardians of Athy Union:—

A bill for 4s. 6d., the price of 1½ lb. of grapes, was before the board.

Chairman—That is a most ridiculous price to pay for grapes.

Master—They were wanted for the child out of the Stradhally Orphanage who had scarlatina; and as I could not get the cheap grapes, I had to buy those.

Mr. Reeves—It is simply outrageous. I knew hundreds of cases of scarlatina with very decent children, and they never saw a grape. I propose that the bill be rejected altogether.

Chairman—You cannot do that. You may object to the bill as being too high, but if you object to it entirely, you open up the entire question of the doctor's extras.

Mr. Reeves—All the luxuries of the land are lavished on these people!

Clerk—I have paid the money.

Mr. Reeves—I am very sorry for it, and would not like to see you at any loss; but I certainly would not pay one penny of that bill.

Chairman—When the doctor ordered them, it would be a hardship for the clerk to be at any loss. But I think that an extravagant price.

The bill was ordered to be paid this time, but such a high price not to be paid for the future.

APPOINTMENT.—Mr. J. H. Brett, County Surveyor, Kildare, has appointed Mr. Matthew Robinson, late assistant surveyor, County Donegal, to be assistant surveyor for the Athy district, in place of Mr. Young, resigned.



## HEATING AND VENTILATION.

Now that so much interest has been created as to the proper heating and ventilation of buildings, we think that a short description of a system of heating by hot water which Messrs. J. L. Bacon and Co., of London, have introduced into a number of buildings, both in this country and on the continent, will not be found uninteresting.

The apparatus consists of continuous lengths of wrought-iron tube  $1\frac{1}{4}$  in. in diameter, closed in all parts and filled with water; a small portion is formed into a coil and placed in a furnace (either of brick or iron) around the burning fuel, the larger portion being arranged in the most convenient manner within the building to be warmed. Provision is made for expansion, by a tube attached to the apparatus at the highest point, and another tube is provided for supplying water; or where this arrangement is not convenient, a small cistern, with expansion and suction valves, is used, and may be fixed at a lower level. Beyond the necessary attention to the furnace, it is only requisite to see that the cistern or filling-tube is properly supplied. The circulation of the water is produced by the application of heat to the coil in the furnace; and as the small size of the pipe admits of presenting the largest possible amount of surface to the action of the fire, it is clear that a greater economy of fuel is effected by it than by the ordinary system of boilers. It is obvious that if a fire is made in the furnace the water in the coil expands as it becomes heated, and being therefore specifically lighter, rises to the top of the apparatus, and by its movement displaces the cold water, which naturally falls and passes through the fire coil. This, being heated, acts in turn upon the rest of the water, which has given off its heat in passing through the rooms and become heavier in consequence. The heated water being specifically lighter than the cold, and *vice versa*, it will be seen that the circulation is created by these two motive powers acting equally one upon the other.

On the first introduction of this system it was supposed that the smallness of the tubes would be prejudicial to their use; but it has been found that this, instead of being a drawback, is a positive advantage. Buildings thus warmed are more thoroughly under control than where large pipes are used; the tubes, from their comparatively small size, contain but little water, and are therefore more quickly heated, causing much greater rapidity of circulation; the temperature can be more easily raised or lowered, and the heat maintained for any length of time at pleasure. There is no red lead or luting of any kind used in connecting the pipes; the joint is made by means of a right and left-hand thread; one end of the tube is flattened, the other coned, and the two ends are brought into contact by a socket, which clips them both. The conical end of one pipe is forced into the flattened end of the other by simply turning the socket, which runs on both threads at the same time, and thus a perfectly solid metallic contact is made as strong as the pipe itself.

The advantages secured by this method of heating are said to be:—The apparatus can be easily introduced into buildings already erected, and with less expense and alteration of existing works than any other, on account of the small size of the tube, and where it would be impossible to introduce large cast-iron pipes. Large buildings can be warmed to an equal temperature, or each room can be warmed to a different degree, and regulated at pleasure by stop-cocks. An immense space can be heated from one fire, which can be placed, where necessary, at a great distance from the room to be warmed. The pipes containing but a small supply of water, the heat is more quickly obtained than by any other system, and can be retained or regulated at pleasure to the greatest nicety. This method of warming is more economical of fuel than any other yet invented. It requires no engineer, but can be attended to

by an ordinary servant. The fuel usually used is coke, but the furnace can be constructed to burn coal, wood, or turf.

Amongst some of the buildings lately heated by this system are, Alexandra College, Dublin; Mullingar Church, Portstewart Church, Wesleyan Chapel, Limerick; and the new Carmichael College, Aungier-street, where the works are at present in progress. Mr. H. Wilmot, architect, 17 Fleet-street, is Mr. Bacon's agent here, and will be happy to give any further information if required. In order to guard against accidents to the tubes in frosty weather, the firm have hit on a non-freezing liquid, which resists frost, and is perfectly innocuous.

## THE LATE M. VIOLLET-LE-DUC.

In the death of M. Eugène Viollet-le-Duc has passed away one of the most distinguished representatives of the architectural profession in Europe. As an artist and a writer on architectural subjects we dare say he stood at the head of the profession, for his works are both efficient and numerous. His most widely-known, as well as most important work, was his "*Dictionnaire raisonné de l'Architecture Française*." The deceased architect was born in 1814, and his father was an eminent philologist and dramatic author. In his youth he studied under M. Achille Leclère, and travelled a good deal in Italy and Sicily; but the architectural features of towns in the South of France attracted a good deal of his attention, and were subjects of his study. In 1840 he was appointed inspector of the works of Sainte Chapelle, which he restored, and in the same year he was entrusted with the restoration of the abbey-church of Vézelay, under the auspices of the Historic Monuments Commission. Later on, in 1845, followed his restoration of the Notre Dame in Paris, in conjunction with M. Lassus, and in the following year the chapter of the abbey of St. Denis appointed him architect of this remarkable church. Next followed a series of commissions, ecclesiastical and civil, new and works of restoration. In 1863 he was nominated Professor of History, Art, and Aesthetics at the Ecole des Beaux Arts, but this post the following year he resigned.

In 1870-1, during the siege of Paris, he rendered efficient assistance in the defence of the city. Among the other chief literary works of Le-Duc was his "*Essay Upon the Military Architecture of the Middle Ages*," "*Dictionnaire du Mobilier Français*," "*Entretiens sur l'Architecture*," "*Cités et Ruins Américaines*," "*Chapelles de Notre Dame de Paris*." The above works, some of which were profusely illustrated, are among his more important literary services, and the ones by which he will be best known. During the last twenty years, however, he has produced a succession of minor works, nearly every year being signalled by a book or a series of essays or letters in the Press bearing upon his profession. As far back as 1804 the deceased architect obtained at the Salon the third medal, in 1838 the second, and in 1855 the first medal. He was made a Knight of the Legion of Honour in 1849, and in 1858 promoted to the grade of officer of that body. In 1863 he was elected member of the Royal Academy of Fine Arts of Belgium, and, later on, Honorary Foreign Member of the London Royal Academy. The death of the distinguished architect took place on the 17th ult. at Lausanne, in Switzerland, where he was spending his autumn holidays; and though slightly ill when leaving Paris, his sudden death was unexpected.

M. Viollet-le-Duc has left behind him as much accomplished work as would make half-a-dozen ordinary reputations. He was not only an artist and an architect, but an efficient educator, who had founded a school of young architects, several of whom are certain to profit by his teaching and bear evidence to the erudition and proficiency of their master. Architects in the British Islands as well as

those on the continent of Europe or America can sincerely regret the demise of M. Viollet-le-Duc, who was a host in himself, and whose strength of body and mind was ungrudgingly given, not only for the honour of his country, but that of his profession, wherever represented, at home and abroad.

## THE NEW SADLER'S WELLS THEATRE, LONDON.

CONSIDERABLE historic interest attaches to old Sadler's Wells Theatre, which had its origin in a "Music House," erected two centuries ago by a Mr. Sadler, a surveyor of highways, and which down to our own time continued to be the oldest existing theatre in London. A chalybeate spring having been discovered, Sadler erected his "Music House" for the recreation of health-seeking and play-going citizens, who soon came in crowds to drink at the "wells" of Mr. Sadler, in the fields between Clerkenwell and Islington. It was not many years, however, until the fields are covered with buildings by the extension of the metropolis. In 1765 the old wooden theatre gave way to a more substantial structure, and as time advanced there were various additions, alterations, and repairs. Those acquainted with the history of the Irish stage and old Smock-alley, and other Dublin theatres, have some knowledge of the actors and actresses that often came from Sadler's Wells to Dublin, and those who left Dublin to make their *début* there. We learn from a London daily contemporary that the new Sadler's Wells Theatre is rapidly advancing towards completion, and that it stands exactly on the site of the old structure, and preserves some of the modern wall boundary of the old building. It is, however, entirely new in its design, and occupies a far greater amount of space. The architect, Mr. C. J. Phipps, has, it is said, made excellent use of his large experience in similar undertakings, and the capacious edifice erected from his designs will be notable for the convenience of its approaches, and the extent of the accommodation provided for the public. It is at present arranged that the stalls shall consist of only three rows, but this number can be immediately increased if required. The commodious pit will comfortably seat nearly 1,000 persons. The balcony stalls and private boxes are so arranged as to command from every part a comprehensive view of the stage, and the gallery will give the same advantage to 800 visitors. The height of the ceiling and the loftiness of all the vestibules will secure perfect ventilation throughout the house, which is to be brilliantly lighted by a powerful "sunlight." The stage is of considerable depth, and the height to the "gridiron" floor being upwards of 50 ft. enables the entire scene to be lifted without being rolled or doubled. A new act drop, painted by Mr. J. O'Connor, represents the old theatre as it existed in 1750. The great improvements which have taken place in this quarter of London have rendered Sadler's Wells much more convenient of access than formerly from all parts of the metropolis, and the vast increase of the population of Clerkenwell during the last eighteen years must greatly augment the local support chiefly relied upon in the days of Messrs. Phelps and Greenwood. The new theatre is estimated to accommodate an audience of 2,500 persons, and it is announced to open on the 9th inst., under the management of the sole proprietress, Mrs. Bateman, long connected with the Lyceum Theatre.

SOCIAL SCIENCE CONGRESS.—The twenty-third annual congress of the Social Science Association opens to-day (1st October) under the presidency of the Bishop of Manchester—a churchman who has for several years back evidenced great activity and industry, as well as taken an enlightened interest in the question of social reform and other kindred ones. This year's congress is not likely to fall behind previous ones; indeed there is every reason for believing it will be a very important one. The papers to be read in the "Health" and "Art" sections are sure to be productive of practical and profitable discussions.



## CORRESPONDENCE.

## THE VAULTS OF ST. WERBURGH'S.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the IRISH BUILDER of this date there is an interesting article on St. Werburgh's Church, in which a letter is quoted from the Rev. Mr. King, which states that he was charged 1s. 6d. for the benefit, as he was told, of the church. I am sorry that the writer of the article in your paper did not see a letter from me published in the *Express* two days after that of Mr. King appeared, in which I stated that the charge of 1s. 6d. which Mr. King was made to pay was wholly unauthorised, and was made for the benefit of the person who shewed Mr. King the vaults. May I add that I have taken the key into my own keeping, and that anyone who wishes to examine the vaults on account of their antiquarian interest will be allowed to do so if he will apply to me or to the Rev. S. C. Hughes. Will you kindly insert this in the next number of the IRISH BUILDER, and oblige, yours faithfully,

WILLIAM C. GREENE,  
Rector of St. Werburgh's and St. John's.  
49 St. Stephen's-green, Sept. 15th.

## PROPOSED MONUMENT TO SIR JAMES WARE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I am glad to have gained so influential an advocate of my suggestion as regards Sir James Ware. I trust I may reckon upon your co-operation in taking further steps. So many of the Dublin *savans* are now away that one could scarcely do anything practical. However, some to whom I have spoken will subscribe. If the idea was popular, we might think of a memorial in St. Patrick's Cathedral. No Irish writer of history ever was more conscientious, either in the investigation or use of facts, and to the clergy he has been a good friend. I need not say how much obliged and honoured I should feel for any suggestion or communication you may think proper to make to me on the subject.

J. H. MACMAHON, Clk.

10 Winton-road, September 20, 1879.

[The two letters which we give in this issue *re* Sir James Ware and St. Werburgh's speak for themselves. We shall be very happy to give whatever aid we can towards assisting in a movement to do fitting honour to the memory of so distinguished a native antiquary and historian as Sir James Ware. A little later on, we may have more to say, but in the meantime we invite responses.—Ed. I. B.]

## OUR NEW BRIDGES.

TO THE EDITOR OF THE IRISH BUILDER.

"What's in a name?"—SHAKESPEARE.

SIR,—I dislike hackneyed quotations, but when I see editors, who should know better, applying Crofton Croker's remark anent Newry to Dublin, and calling it the most car drivingest place in Europe, I may be excused, and excuse myself for asking, with Juliet, "What's in a name?" At present it appears there is a name wanted for the new bridge at the Custom House. *Beresford* is out of the question, as we have already a Beresford bridge opposite the crooked building on Wellington-quay, the name of which has long been forgotten in the use of the more familiar "Metal." I have been endeavouring to help the Corporation and my fellow citizens in the matter, and have thought of many names appropriate and euphonious. "Stoney-batter," a good name, must be reserved for all that remains of Carlisle, which I fear is not much (he could not now be tried by his *piers*). Well, then, as a correspondent some time ago named a certain bridge in your issue of 1st ult. the "wady-bucketty," I would suggest for the *pons asinorum* at the Custom House the cognomen of the "swing-swing,"

or, happy thought, the "merry-go-round." But, joking aside, whilst we have "hand bridges" and "foot bridges," in all honesty should not this be the Mann Bridge? By all means!

Montpelier Parade, 29th Sept., 1879.

P.S.—In some old city maps the "Metal Bridge" is named Wellington, and tho "Whitworth," "Hardwick,"—but "what's in a name?"

## "A DEFENCE OF JERRY."

"And put in every honest hand a whip,  
To lash the rascals naked through the world."  
—SHAKESPEARE.

"Oh where are you going, Sir Johnny?" she said,

"Or what do you want for to see?"

Does the death-rate perplex you,

Or the new dwellings vex you,

Or the state of the limpid Vartree?

New statues in scores, not to mention Tom Moore's,

We have in our ancient citie;

And missions to heathens and Jews and wild Turks,

And architects' councils and Boards of Works!"

"I'm aware of all that," said he.

"At present my walk is along the Coombe

And Pimlico River, you see,

To discover a place

Where, with typhoid to face,

We can house artisans cheap-lee.

The Buckingham swamp's insufficiently damp;

The dry rot may break out there;

But I think what we want may be had for a song

In Chamber-street, Weavers'-square!

"The IRISH BUILDER may talk and write—

*Cacoethes scribendi* is cheap;

But what do work men,

And carters, and truck men

Require but a place to sleep?

Ventilation is all very well, I'll say,

And Cameron's learned talk!

So long as neither stand in the way

A decent percentage to baulk.

The good old times they continually quote,

When Johnston and Stitt were alive,

And Stedman and Lever, and Carolus, built

Proper houses in which one might thrive.

"But, for my part, such dwellings were much abused;

They were air-tight and water-tight, too.

To be sure healthful homes are next to one's food—

I'll deny not the maxim is true.

But a six-inch wall is quite thick enough—

'Tis absurd to 'go in' for more!

And seven-inch battens by inch for joists,

And a twenty-inch ope for a door.

If rain should come in, let them catch it in tubs—

It's the best in the world for tea!

People like these must put up with life's rubs;

Their presumption's disgusting," said he.

"Do they want ten thousand of cubic feet

For room wherein to snore;

Or double-hung sashes,

To come down in smashes?—

That BUILDER's a regular bore! [true,

No doubt they'd like wardrobes with doors to shut

And water laid on *à la mode*;

'Tis a wonder they know the way to their mouth!

Must we give them green-houses facing the south,

With majolica fountains of 'spode'?"

"Give them pure air, Sir Johnny," she said,

"On some bit of ground down by the sea;

They are poor and easily pleased, God knows;

Give them the sunshine and wind that blows."

"I would cock them up with it," said he!

"I do not believe in the Registrar's rate,

Nor in all that sentimental prate,

For we'll make them live, and be tem-pe-rate,

Wherever we please, you'll see!"

Rus-in-Urbe, 29th Sept., 1879. Z.

## THE TRADES UNION CONGRESS IN EDINBURGH.

THE twelfth annual Trades Union Congress opened at the Oddfellows' Hall, Edinburgh, on the 15th ult., closing on the following Saturday. There were 115 delegates present, four of whom were females. Mr. J. D. Prior, of the Amalgamated Society of Carpenters and Joiners, presided. The societies represented at the Congress were ninety in number, including in their membership 541,892 working men and women. The following among others are some of the societies represented, the names of the delegates, the figures giving the number of members belonging to each society named:—Bricklayers' Operative Society, 6,510, E. Coulson, London; Operative Bricklayers of

Scotland, 600, Thomas Macduff, Glasgow; United Operative Society of Bricklayers (Leicester Branch of Manchester Unity), 250, J. H. Main, Leicester; Carpenters and Joiners, Amalgamated Society, 17,000, J. D. Prior, Manchester; Associated Carpenters and Joiners of Scotland, 8,110, W. Paterson, Glasgow, and J. Thom, Edinburgh; Carpenters and Joiners, General Union, 10,085, J. Lindsay, Manchester; Amalgamated Society of Engineers, 45,000, J. Burnett, London; House Decorators' and Painters' Amalgamated Society, 800, G. Shipton, London; Ironfounders of England, Ireland, and Wales, 12,500, Daniel Guile, London; United Operative Masons of Scotland, 11,821, T. Walker, Edinburgh, and John Carmichael, Edinburgh; Mill Sawyers, United Society of Liverpool, 60, W. Warwick, Liverpool; Masons' Friendly Operative Society, 24,000, Henry Broadhurst, London; General Alliance of Operative House Painters, 700, Thomas Sharples, North Liverpool; National Operative Association of Plasterers, 8,000, C. Williams, Birmingham.

Mr. J. D. Prior, in his opening address as Chairman of the Parliamentary Committee, defended trades unions, averring that if working men had suffered no wrong, they would never have found in combination a mode of redress. He trusted that the Congress, whose members knew that trade depression meant something more than the curtailment of luxuries and the diminution of accumulated capital, would ascertain whether something more than had been done could not be done to alleviate the suffering and privation which prevailed amongst those whom they were delegated to represent. From figures compiled by Mr. Guile, he found that during the year 1878 four societies, numbering in the aggregate 90,000 members, had expended in benefits to distressed members during the year no less a sum than £260,000; and he could not help feeling astonishment at the vast amount of poverty and distress which had been alleviated by the unions, and the enormous benefit which had accrued to the ratepayers of this country by the establishment of the detested and much-abused trade unions. But, he asked, was it really an absolute necessity that every few years large multitudes of the people should, through no fault of their own, be reduced to such a destitute condition? Opinion was that much might be done to improve the social condition of those whom they represented if they would only enlarge the area of their political action, and unitedly endeavour to remedy some of the evils by which the people of this country were impoverished. Their action as a congress had hitherto been mainly political, and through the influence used by the trade unions had laws had been repealed, and questions of great national importance in which they had taken the initiative had demanded and received the attention of the Ministry, the Legislature, and the country. They required to take a few great questions out of the area of party politics, the questions on which working men, both Liberals and Conservatives, could unite, and they could accept no candidate for party honours unless he was prepared to unite with them in endeavouring to remedy the evils of which they complained.

On the motion of Mr. Thom, joiner (Edinburgh), seconded by Mr. F. W. Evans, Mr. David Gibson, chairman of the Edinburgh Trades' Council, was elected president of the Congress, and at once took the chair in place of Mr. Prior.

Mr. Henry Broadhurst, secretary of the Parliamentary Committee, then presented the annual report of that body, which at some length reviewed the legislation of the past session as affecting the working classes. The Committee expressed regret that no progress had been made with the Employers' Liability Bill in the past session of Parliament. Mr. Macdonald's Bill, if passed into law, would not establish any exceptional legislation in favour of workpeople. On the contrary, it would merely remove special exclusion from the protection of the law. This bill, originally proposed by the Parliamentary Committee, and so ably taken in charge by Mr. Macdonald, was the only measure which proposed to give the workman the same protection as was now enjoyed by other people against the carelessness and neglect of an employer who endeavoured to carry on his works with inefficient or unskilled labour or defective plant. Such employers, the Committee was convinced, formed but a small minority of their class, but it was nevertheless necessary to protect their workpeople against this recklessness and disregard of the safety of those employed. In the "General Remarks" with which the Committee conclude their report, they say:—"During the past year labour disputes have been far too numerous for special reference to be made to any particular cases. Desperate struggles have been entered upon, and in some cases maintained, for the defence of the existing hours of labour. That numerous attempts to destroy the nine-hours'



system should be made does not surprise us; we therefore congratulate the trades upon the large measure of success they have achieved in this direction. Whatever is suffered in the form of reduced wages, the existing working-hours must be defended, and where they are surrendered for a time, the first work to be done with the return of prosperity must be their re-establishment. Reduction in wages has been almost general in every trade. In some cases circumstances may have given reason for the demands made upon the work-people, but in a large number of cases there has been no just cause. Many employers have reduced wages upon no other ground but that the opportunity served them. . . . The Parliamentary Committee and the Congress have ever been the advocates of Reason v. Brute Force; but if, in time of depression, employers recognise 'might' as the only 'right,' we may well despair of the future relationship of capital and labour. The events of the past few years offer food for reflection as to the present system of trade societies in rendering assistance to each other in times of difficulties, and the question is raised whether many of the unions do not need considerable re-organisation, not only in administration, but in regard to an increase in their contributions. There is no doubt of the necessity of a much closer unity of action, not only amongst kindred trades, but amongst all trade associations, if unionism is to be a real power in the land. The larger the scale upon which it is practised the better it must be for those affected. At the same time, we cannot ignore the obstacles in the way of a complete form of federation of all trades for all purposes, but there does not appear to be any reason why nearly all the unions should not unite for the common purpose of defence in cases of attack on any established conditions of labour. On the contrary, we are of opinion that such a scheme is practicable, providing those forming the alliance would submit to the wholesome discipline of an unbiased central board of management. This would give to those connected with it not only material assistance, but the advantages of a valuable experience on a broader scale than can possibly be obtained from any one trade, however great their numbers may be or however wide their ramifications. The present severe depression of trade, and the consequent suffering amongst all classes of workpeople, will force upon these annual gatherings a consideration of the broader and higher questions which affect the material condition of the working population."

On Tuesday morning the president, Mr. Gibson, delivered an inaugural address as a preliminary to the real work of the Congress. He complained that recent experiences had shown employers to have a strong aversion to any reasoning on the question of wages, which, taken with the fact that in the great productive trades—such as coal, cotton, and iron—there was a determination to reduce wages to the lowest rate, made the industrial outlook sufficiently ominous. The miners' dispute in the Durham district, among others, might be referred to as an illustration of this intolerance of conciliation now so prevalent. Indeed, all over the country instances could be found of strikes wantonly provoked by a tyrannous enforcement of terms such as was there sought to be inflicted. The employers, in their power, had evidently forgotten their old love for arbitration. The belief had taken possession of their minds, instead, that they could do as they pleased, and so they could; but this was founded upon the idea that working men could not do as they pleased too. They calculated that working men would be deterred by the censures of the Press from doing as they had been done by, if, in time to come, the example set by the employers should be thought worthy of imitation. There was no warrant for believing they looked so far forward, but, by the time it had been discovered how little the men could live and work upon, they might realise the fact that the relations between capital and labour had by their shortsighted policy been unnecessarily strained and materially changed for the worse. If there was any danger of foreign competition—that wolf of British commerce about which there arose periodically such nervous panic—it was more likely to be successful in a contest with industries conditioned such as these were, than where more generous treatment obtained. It was to be regretted that so much of the spirit of antagonism to trade unions should have been evinced by nearly all who had written on the subject of trade depression. With somewhat portentous unanimity, they agreed to assign a more or less prominent position in the sometimes long list of causes to the action of the working classes. The many charges that had been thus made against them had over and over again been refuted in past congresses, and it would be thrashing already thrashed straw to repeat the work. Regarded at one time as one of the principal causes, they had now become chargeable with the minor offence of shortening the time

during which commerce continued prosperous, and in the same way prolonging the present depression. This had been done by strikes. It was thus assumed that the collapse of trade which occurred in America in 1873 was caused by the workmen of this country, for to such an absurdity was this statement reducible, and that the consequent depression, universal in extent though it was, could never be got rid of until the workmen agreed to take for the future what wages capitalists thought fit to give. By some, again, the chief cause is attributed to the condition of the schools and workshops of the Continent, and in a pamphlet published in Edinburgh recently (which for the information it gave concerning the state of technical education on the Continent was very valuable) it was quietly assumed that some of these countries had an advantage over this in their manufacturing industries. The ignorance of the British workman had always been regarded as an unknown quantity by his candid friends, and those gentlemen who advocated measures designed to instruct him with a technical knowledge of the trade he belonged to were desirous that the same opportunities should be afforded him here as were supplied on the Continent. In these schools diplomas were granted, and the advantages of having secured the education necessary to be in this position were stated to be that the services of those who obtained them were much sought after by employers, and that they were everywhere able to demand higher wages, because the work was of more value. He wished not to be misunderstood nor taken to mean anything that would employ an underrating of the importance and value of education of this kind to all workmen; but it must be apparent to anyone who had the slightest acquaintance with the conditions of employment of this class of men in Britain that this education, vouched for as it might be by however many diplomas, could not be relied upon to bring them promotion of any kind. In the railway services of the country, for instance, it was well known that engine men and drivers, with the diploma of long experience, were too often suspended or dismissed for the most trivial faults, and sometimes no fault at all, in order that their wages might be reduced. The effect of this special knowledge in these countries had not been felt in any part of our trade, and could not be ranked as one of the causes of its depression. Speculative loans to bankrupt States were of the timber, but, to his mind, the real cause was to be found in the withdrawal of millions of men from the ranks of productive industry, and imposing upon the people the herculean task of supporting armies of idlers, who, like locusts, consumed the fruits of other men's toil.

A vote of thanks was accorded to Mr. Gibson for his address, and on the motion of Mr. Daniel Guile, the report of the Parliamentary Committee was adopted.

Mr. F. W. Evans (Railway Servants' Society) inaugurated the discussion of the Parliamentary Committee's Report, and contradicted the declaration of the Committee. After a long and irrelevant discussion the report was carried, Mr. Guile, who seconded its adoption, pointing out it was competent for each delegate to discuss each item thereof afterwards.

Mr. Henry Crompton, barrister (London), addressed the Congress on the Summary Jurisdiction Act. The Government, he said, had now undertaken to codify the criminal law, and should be urged to also codify the statutes relating to summary crimes.

Mr. J. Burnett (London) moved:—"That in the opinion of this Congress the Compensation Bill of Mr. Macdonald, M.P., lays down the only just principle that can be applied in the construction of such a measure, inasmuch as it provides that in any action raised by a workman or his family for injuries or loss of life sustained while following his employment it shall be no ground of defence that the person by whose negligence the injury or loss of life is alleged to have been caused was engaged in common employment with the person injured or killed, or that the risk of injury or loss of life is voluntarily incurred by the person injured or killed." He contended that Mr. Macdonald's bill was the only logical one. Mr. Brassey's was a compromise, and that of the Government would have been better, but for the action of Mr. Evans.

Mr. Evans adversely criticised Mr. Macdonald's action in the matter, and claimed that Mr. Brassey's bill was superior to Mr. Macdonald's.

Mr. Macdonald, M.P., said his bill was really the bill of the trades unions of the country, drawn up by their own Parliamentary Committee, and put in his hands for conduct through the House of Commons. He warmly denounced Mr. Evans's conduct in trying to run a sectional bill in the interests of railway servants only, and thereby damaging the prospects of the general measure. As for the Government bill it was valueless, and he would continue, as long as he sat in Parliament, to press his own bill till it became law.

The resolution was ultimately adopted, and also one thanking Mr. Macdonald for his services.

On Wednesday, the Congress assembled under the presidency of Mr. Gibson, who introduced Mr. R. S. Wright, of London, who delivered his promised address on "Land and Labour." The address was an extremely long one, dealing with the land question, the laws, and the causes of agricultural depression. We give a few of the opening passages which are confined to the question of capital and labour. Mr. Wright said:—"I have not had the advantage of hearing the addresses delivered by Mr. Prior, the chairman of your Parliamentary Committee, and by Mr. Gibson, your president; but I have been glad to find from the reports of their speeches that your Congress is disposed to widen its programme and to consider other questions than those which specially and directly affect labour. There can be little doubt about the wisdom of such a course. It is beginning to be more plainly perceived by you and by the public that there is no real antagonism between you and capital, or between you and land, and it is one of the principal uses of such a meeting as this that, thanks to the Press and its representatives, you are brought face to face with public opinion, your ideas are reported and criticised. The public learn what the best and fairest employers, like Mr. Brassey, have already learnt, and what some of them have not feared to say, that the leaders of unions are easy and reasonable to deal with, that you are more engaged in moderating disputes and strikes than in promoting them, that without the unions and trades councils the conflicts between capital and labour would be far worse and more ruinous than they are, and that the unions lend most important service in reducing the burden of poor relief. I do not believe that there is anyone here who ever desired a strike, or does anything but deplore it as a ruinous necessity which has to be sometimes faced, like war, for fear of worse. Strikes are, no doubt, sometimes a necessity, especially as they are carried on in the teeth of a public opinion which is generally hostile. Very much more can be done by organised arbitration than has yet been done. The necessity is to get public opinion on the right side, and I believe that the means exist for doing this. What is really wanted is something in the nature of the Nottingham Board, which shall be in continuous operation, and which shall, from week to week or from month to month, meet and consider the circumstances of the time, and fix what is a fair wage for the time being under all the circumstances of the particular trade. But now comes in what I want specially to suggest. It is that you should establish in London—I say London because it is the centre of public opinion—a supreme general board of appeal, who should support or overrule the decision of the local board. If either side struck against the decision of such a board of appeal, that side would have public opinion against it, and would have great difficulty in making good its ground."

Mr. Daniel Guile (London) read a paper by Mr. George Howell on the codification of the criminal law. The paper condemned the Government bill on the subject as preserving several old statutes for the purposes of class legislation. These statutes were not applicable to the entire community, but intended to be directed against the working classes. No new code should, it was contended, be accepted, unless it was complete in itself, all former laws being repealed. Conspiracy should be accurately defined, as also the power of summary arrest, and the right of the accused to be tried by a jury of his equals combated for.

On Thursday the proceedings opened by the resumption of a debate on a motion presented by Mr. Davey (Gateshead), to the effect that it be an instruction to the Parliamentary Committee to continue their efforts with, if possible, increased energy to secure the appointment of an additional number of assistant inspectors and sub-inspectors composed of practical working men, to be under the control of the inspectors and sub-inspectors. To this an amendment had been moved, proposing to insert the words "and practical working women" for the purpose of enabling women to receive the appointment of factory inspectors.

Mr. Sedgwick (Leicester) resumed the debate, and severely criticised the manner in which the Factory Act was carried into operation. The act was eluded by the sweating system by many workpeople in various industries, who took their work home with them at night, thus making their homes into warehouses and illegitimate manufactories. The result was that wages were lowered and the labour market was glutted. The speaker also referred to the physical effects of the system, which could not be reached by the present factory legislation. As to the qualifications of inspectors, alluded to in the report of the Parliamentary Committee, he trusted that the inspectors would not be chosen because they happen to know two or three



dead languages, but that men would be selected who had an absolute knowledge of the requirements of working men and of the needs of the work in which they were employed—in short, practical men.

Mr. T. Mottershead (London) did not consider that it would be advisable that women should be employed as factory inspectors. To begin with, women were unable physically to face the difficulties of such an employment, and there was no evidence of their desire to enter into such work. They would have to go into places where women should not go. If they thus put women into the position of men they would have the women taking up employments to which they ought not to go. They might have women descending into mines. As he did not think that women desired such employment—were not fitted for it, and ought not to be induced to come in contact with the circumstances attending the avocation—he would vote against the proposition to facilitate the employment of women as factory inspectors.

The vote was taken with the result that 37 voted for the motion and 49 for the amendment including the female inspectors. The result was received with loud applause.

Mr. James Bradshaw read a paper on "Africa: a Paramount Necessity for the Future Prosperity of the Leading Industries of England." A discussion followed.

Mr. Rhodes, who read a paper proposing that engine men should be compelled to undergo an examination as to efficiency, moved a resolution of thanks to Mr. Burt, M.P., for his efforts in that direction, and a recommendation to support his proposition, which was adopted.

Mr. A. Simons (Kent and Sussex Agricultural Labourers) drew the attention of the Congress to certain statements on trades unions from the National Society School reading-book, and concluded by moving a resolution denouncing the book. Mr. Joseph Arch supported the resolution in an address, and several other delegates followed. Ultimately the resolution was adopted.

On Thursday night a crowded meeting has held in the Oddfellows' Hall. Resolutions were adopted in favour of extending and strengthening trades unions organisations, and of the settlement of disputes by a board of arbitration properly constituted.

On Friday the auditors presented their report, from which it appeared that the income of the Parliamentary Committee for the past year had been £792 12s. 1d., while the expenditure was £655 8s. 8d.

The question of the federation of trades unions was introduced by Mr. Knight, of Liverpool, who submitted a scheme for the federation of organised trade societies, the first object of which shall be the formation of a fund for the maintenance of the present nine hours' system as a recognised day's work.

The Parliamentary Committee also submitted a plan which they had prepared, with the object of providing a fund for the assistance of all societies connected with the federation which may become involved in disputes with their employers.

The long discussion which ensued on the subject revealed difficulties which have to be surmounted before federation can be realised, a strong feeling being manifested in favour of the application of the principle to districts before any national scheme was attempted.

The resolution of Mr. Knight was carried by a majority of two votes. All the societies represented at the Congress will, however, have to be consulted before the scheme can take effect.

The President read a letter from the Rev. W. Cunningham, Lecturer on Political Economy at the University of Cambridge, stating that a body of the clergy had been for some time engaged in an effort to get eliminated from school books the passages which were so justly censured at Thursday's meeting. The rev. gentleman, who was present on the platform, briefly addressed the Congress, the reading of the letter and his remarks being loudly applauded.

The Congress adjourned at one o'clock for an excursion to Dalmeny Park, the seat of the Earl of Roseberry, to which they had been invited by his lordship.

On Saturday, the sixth and last day, the first business was a motion by Mr. John Jones (Bristol)—"That, in the opinion of this Congress, the action of the Government, as instanced at the Shepton Mallet Gaol, is calculated to convert our prisons into huge workshops, thereby unduly interfering with free labour and creating unjust competition in certain branches of industry at the expense of the ratepaying community, and that the Parliamentary Committee be instructed to take steps to check the evils complained of."

Mr. Jones (Gateshead) seconded the motion, which was carried unanimously.

The subject of Co-operation had been looked forward to with special interest as likely to lead to

an interesting discussion on the present system of trading, but it gave rise to little speech-making.

Mr. Williams (Birmingham) moved—"That this Congress desires to maintain the friendly relations between itself and the Co-operative Congress, believing that the principles of co-operation, both in production and distribution, are calculated to be of advantage to the class to which the members of trades unions belong, and strongly recommends the co-operative societies to conduct their business in relation to their employers on principles that may avoid disputes, and to acknowledge the rate of wages paid in the various districts in which the stores are established."

Mr. Toyne seconded the motion.

Mr. Bayley (Newcastle), delegate of the Central Co-operative Board of the United Kingdom, said the board represented 393 societies, with a membership of 507,000, and a turnover during 1877 of £2,000,000. The motion was passed unanimously.

Several other motions were proposed, discussed, and carried, bearing on Trades Representation in Parliament, Prison Labour, the Royal Commission on Agriculture, &c. Mr. Henry Broudhurst was unanimously re-elected Secretary to the Parliamentary Committee. A vote on the question as to the place of meeting of the Congress next year resulted in favour of Dublin by a majority 54 against 17 for Manchester.

The Congress returned thanks to the trades councils of Edinburgh and Leith for the arrangements that had been made for the comfort of the delegates, after which a vote of thanks to the chairman, secretary, and other office-bearers was then proposed. The Congress then adjourned to meet next year in Dublin.

The above is little more than an outline of the six days' proceedings, which included several papers, addresses, resolutions, and discussions on the questions brought before the Congress.

### ROTTEN HOUSES IN THE CITY.

HAD our space permitted we would have given a report (which we have in type) of what took place on the 23rd ult., at an inquest held by the City Coroner on the body of a woman, aged 64, who lost her life by the falling of a portion of a rotten house in Moss-street. This, we regret, as increased publicity might act as a warning to landlords, tenants, and the city authorities, as the house in question is only one of the many which exist in the same neighbourhood, and in other districts through the city, in a similar ruinous and dangerous condition. More vigilant supervision is needed, for at any moment a great sacrifice of life may take place. The jury, after some consultation, returned the following verdict:—"We find that the deceased, Maryanne Bride, was instantaneously killed by the falling of a house, No. 10 Moss-street, on the 20th of September, 1879. We find that the occurrence was accidental, and was caused by the decay of the flooring joists, and we consider that the Corporation should instruct their officials to exercise more vigilance in examining the houses tenanted by the lower classes."

On the 23rd ult. also another house tumbled in one of our leading thoroughfares of the city. The house in question was 111 Grafton-street, occupied by Mr. Thomas Bruncker, watchmaker and jeweller. The house next door (110) lately occupied by Mr. John H. North, house agent, had recently been taken down, and was about to be re-built by Messrs. Meade and Son, of Great Brunswick-street. Mr. Bruncker's house was propped or stayed in front by a large beam, with other subsidiary staying timbers. For some days there were indications of the impending fall, which took place with a great crash on the evening of 23rd, the heavy beam coming down on the top of a passing tramcar, and the debris of the building completely blocking up the street. Happily no lives were lost, the passengers on the occasion being all inside ones. We think it is time that there should be an examination made of other houses in this street. Re-building is often attended with considerable risk and danger. It is the duty of a builder to be cautious, but he is not bound, nor is his client, to expend much money or labour in keeping other people's houses from tumbling. If his operations materially injure them he is answerable, but it is the

duty of owners and occupiers to take proper steps for the safety of their own properties, and more particularly if they are aware that their houses are very old and in an unsafe condition. Apart from owners, occupiers, and builders, it is the bounden duty of the city authorities to exercise a careful supervision over old house property, and, indeed, we may add, over new house property too, of the low-class speculative description.

### IRISH ART WORK.

Our journal has always taken an interest in works produced by native artists, and on the present occasion we have to express the very great gratification we experienced on visiting, since the date of our last issue, the well-known establishment of Messrs. Farrell and Son, at Glasnevin. After inspecting many creditable specimens of art-work in stone, our attention was specially drawn to four highly ornate Celtic Crosses, composed of the finest Wicklow granite, from the Ballyknockin quarries. It would be almost impossible to describe the pleasing artistic effect produced in the treatment of these crosses by the judicious combination of highly-wrought ornaments, and the polished surfaces at base on which are the inscriptions. The next object presented to our view was an alto-relievo figure, life size, in pure white marble, of St. Patrick. The saint is represented with primatial staff in the left hand, whilst the right is placed upon the heart. From the easy and natural pose of the figure we must conclude that it is the result of deep study on the part of the sculptor. We understand that this goodly sample of Irish artistic work is to grace a niche in the front of a new building now in course of erection at St. John's, Newfoundland, at an elevation of some 25 ft. from ground. The crosses also, we should mention, are intended for America.

On leaving Messrs. Farrell's we took a notion of meditating among the tombs in the adjoining cemetery. Approaching the fine gateway erected over forty years ago from a design by Mr. Patrick Byrne, we found to our surprise there was no admission. On a black board fastened on the ironwork is the following—

NOTICE.  
This Gate is now finally closed.  
The only Entrance to the Cemetery is Situated in the Finglas Road.  
By Order.

Formerly there were toll-bars on both the Finglas and Glasnevin roads at their junction with the Phibsborough-road, and vehicles proceeding to the cemetery had to pay toll. In order to get rid of this obnoxious impost, a plan was devised by Daniel O'Connell, by which a *via media* was formed, and the occupation of the toll-takers soon afterwards vanished along with the bars.

A notice of the new mortuary chapel and entrance has already appeared in the IRISH BUILDER.

### HOME AND FOREIGN NOTES.

At St. John's R. C. Cathedral, Limerick, a somewhat unpleasant and unusual state of affairs has arisen consequent on the rejection, by the clerk of the works, of stones supplied by the contractor for the erection of the tower. We learn that, pending the dispute, the men belonging to "the guilds" have struck work, and another set engaged on the tower, guarded by thirty men of the R.I.C.

COLOGNE CATHEDRAL.—The first stone of Cologne Cathedral was laid on August 15, 1248. The 631st year of its building was completed on the 15th of last month, and it is hoped that the next anniversary will really see the finishing of the great Minster. The two towers have now reached their last stage, and have only to be fitted with their massive caps of solid stonework. For this purpose two great scaffoldings have to be erected at a dizzy height; one of them, however, already approaches completion. When the caps have been finished, then a still higher storey is to be added to the scaffoldings, in order to fix on the tops of the caps the gigantic foliated crosses,



almost 30ft. high, which are to crown the towers. This operation will, it is expected, be performed next spring.

**PARIS EXHIBITION—ARTISAN REPORTS.**—The selected reports on the Paris Exhibition, made by the artisans who were sent out last year by the Society of Arts, are now in course of publication by Messrs. Sampson Low. They will be published in twelve parts, as follows:—Pottery and Glass (two parts); Art Workmanship; Mechanical Engineering; Agriculture and Horticulture; Building Trades; Cabinet Work; Watch and Clock Making; Jewellery and Optical Instruments; Printing; Textile Fabrics; Leather and India-rubber; Mining and Metallurgy. The reports have been edited by the secretary of the society, with the assistance of Dr. R. J. Mann. Although it has been found necessary to omit portions here and there, to avoid irrelevant and needless repetition, great care has been taken to preserve the most distinctive characteristics and the most important conclusions of each writer. The text of the manuscripts has only been altered where this was necessary to correct grammatical errors, naturally incident to the compositions of men unaccustomed to write for the press, and to remove such faults of construction as involved uncertainty and obscurity of meaning. The price of each will be sixpence.

### THE ROYAL COMMISSION ON THE SANITARY STATE OF DUBLIN.

The commissioners, Messrs. Rawlinson, C.B., and Dr. F. X. MacCabe, sat yesterday in the City Hall, and commenced an inquiry into the sewerage and drainage of the city, and into the sanitary condition of the same, and the state of the Liffey.

Several members and officials of the Corporation were in attendance.

Mr. Rawlinson said the inquiry was of a very important character to the citizens of Dublin. They were instructed to inquire into the main drainage and the purification of the Liffey, but, inferentially, he held that they were not debarred from taking into consideration other causes which might affect the public health of the city of Dublin; and that there were other causes of a very grave and serious character he was sure every person who had paid the slightest attention to the condition of Dublin must be perfectly aware. There were many theories as to the causes of disease in excess. Some attributed the excess to geological causes; some to meteorological causes, and so on. He had been obliged to come to the conclusion that the prime causes were not to be attributed to those conditions, but to some form of neglect in the construction and management of the houses in which the people dwelt. If they had people living under conditions where purity of the atmosphere was impossible, they must naturally look for excessive disease; and where those conditions existed, it was the duty of the sanitarian to make such recommendations as would lead to their removal.

Mr. E. Gatchell said he would be prepared to prove that the Vartry water was impure, and was a prevailing cause of excessive death-rate.

The Town Clerk, Mr. John Beveridge, was examined at some length, and read a report, giving a history of what had been done in the matter of drainage during the past twenty-five years.

The City Engineer, Mr. Parke Neville, C.E., gave some very important evidence, and was cross-examined as to his knowledge of what had been done in other cities. He said that a large proportion of the best class of houses in Dublin are as defectively sewered as the poorer ones.

The inquiry promises to be a very exhaustive one. Being obliged to go to press on the first day of the sitting, we are obliged to hold over a full report.

### NOTES OF WORKS.

The new terminus at Cork of the Cork and Macroom Railway has been opened for traffic.

At the Athlone Station of the Midland Great Western Railway, the floor of new platform has been laid in Limer rock asphalt by Mr. R. Worthington, 40 Dame-street.

Plans have been prepared by Messrs. O'Neill and Byrne, architects, for a new church, dedicated to St. Agatha, to be erected on vacant ground in North William-street, at a cost of about £8,000. Of this sum £500 has already been collected.

The new reservoir for the supply of water to Greystones is now complete, and the liquid available for the use of its inhabitants. The work was carried out by Mr. John Cunningham, Dalkey, under the superintendence of Mr. James Price and Mr. J. Brett, C.E.s.

On Saturday last the ceremony of opening a village church took place at Hayestown, near Banbridge. The remodelling of the old parish school-house, by the addition of chancel, new windows, and roof, has resulted in affording the parishioners a convenient place of worship. The internal fittings are plain and substantial. The works have been carried out from plans by Mr. E. N. Banks, Belfast, by Mr. J. Harkness, a local builder.

For William Ewart, Esq., J.P., Belfast, there is being erected a large-sized villa with four sitting-rooms, eight bed-rooms, hot and cold baths, lavatory, two w.c.'s, ample pantries and culinary accommodation; exterior of dressed bricks with terra-cotta decorations; square tower carried up over entrance porch; bay and square projecting windows to sitting-rooms, and carried up to roof. Messrs. Thos. Jackson and Son, Plough Buildings, Belfast, architects; and Messrs. J. and R. Thompson, contractors.

The new baths and wash-houses situated at Peter's-hill, Belfast, were opened on Thursday last by the Mayor (J. Browne, J.P.).

The entrance to the establishment is by a gateway leading into a vestibule, from which there are open passages to the bath-rooms. On the ground floor there are two bath-rooms, one for women and the other for men, and over the latter, on the first floor, there is another bath-room for men. Each of the rooms contains eight baths, and has a waiting-room attached. The baths are divided into first and second class; the first class having showers, the second none. Over the vestibule, and on the first floor, there is a board-room, and over the bath-room for women are the apartments for the caretaker. At the rear of the main building, and entered through a gateway at the end, is a wash-house fitted up with tubs and with a kieve for washing clothes. Alongside the wash-house is an apartment containing the boiler, and immediately adjoining is a drying-room heated by steam-pipes. The buildings are of brick, with stone-dressings and terra-cotta bands. The site cost about £3,000, and the structure will cost about £4,000. The concern will be under the direction of the sanitary committee.

### TO CORRESPONDENTS.

**THE ROYAL COMMISSION.**—We understand that several "distinguished amateurs," wise and otherwise, will volunteer to give evidence as to the condition of the city. We hope they have facts in their craniums, and will give vent to more than hollow sounds. We are determined to keep our eyes open, and to guard them against dust, which, we fear, will be very plentifully thrown.

**M. D.**—We will willingly publish the notice whenever sent.

**SURVEYOR.**—The subject will keep, and at the opportune moment we will draw attention to the affair.

**RECEIVED.**—R. W.—D. C. F.—Sanitarian—An Architect (thanks).—E. C.—M. A.—R. E.—R. H. A.—S. C.—O'B.—W. and Co. (London)—L. L. D. (to hand)—R. E.—A Belfast Builder—J. C.—R. P.—W. A., &c.

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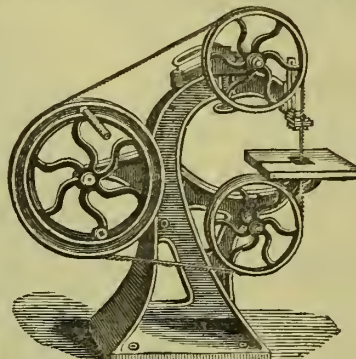
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THE IRISH BUILDER.

VOL. XXI.—No. 476.

THE  
LIFFEY AND DUBLIN HARBOUR—  
PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.

SECOND PAPER.

**W**ITHOUT going back further in respect to the Liffey than the beginning of the seventeenth century, Speed's map of the city in 1610 forms an instructive study. Here we have the river unembanked by any quays on the north side, and only a small portion embanked on the south. The Liffey and the tides overflowed nearly the entire extent of what is now represented by the lines of quays from King's Bridge to the end of the North Wall, with the exception of a small area occupied by the monastery and lands of the Dominican Friars, about the site of the present Four Courts.

In 1610 a portion of the old district known as Ostmantown, or Oxmantown, comprising Old Church-street, St. Michan's Church, Pill-lane, and extending to and including St. Mary's Abbey, was the only part of the north side of the river built upon. All else of the line of the northern quays was covered with ooze, which extended inwards from the central line in the river here and there to a considerable extent. A single bridge spanned the Liffey in a line with Bridge-street and Charch-street, which bore the name of the "Old Bridge" down to the early part of the present century. On the south side the space of ground occupied by Crane-lane, Temple-bar, Fleet-street, Townsend-street (*i.e.*, Lazar's-hill), including George's-quay, and extending to and beyond Ringsend, was more or less under the dominion of water, as indicated in our first paper. Dame-street, though somewhat elevated in part, had only a short range of buildings on its north side, and this built-upon land extended no further than the

precincts of the Augustinian Monastery in George's-lane, the locality of the present South Great George's-street. In Speed's map the "Old Bridge" (the site of the present Whitworth Bridge) is marked "Bridge Gate." Then we have "Marchants' Key" and "Wood Key," with Fion's Castle thereon, and Newmans Tower on the spot where old Essex Bridge stood. A little harbour existed at the foot of Dame's Gate, from whence, it is stated, in 1534 John Allen, Archbishop of Dublin, took boat to escape the vengeance of Thomas Fitzgerald (Silken Thomas), then in arms against Henry VIII.

We learn from Gilbert's "Dublin" and other authorities quoted, that a portion of the locality just named was selected by the Government in the reign of James I. for the purpose of erecting cranes and making wharves, whereby the merchants might land their goods at a convenient place. A lease for 90 years was taken by the king on the 10th November, 1620, from Jacob Newman, of "a certain parcel of ground lying in or near Dame-street, in the suburbs of the City of Dublin, containing from the river on the north side, in length southward 160 ft., and at the south end, in breadth 106 ft., with free egress and ingress through a lane leading from the said street to the Liffey, containing in breadth 18 ft., at a rent of £50, payable out of the fee-farm rent due by the mayor, and sheriffs, and citizens of Dublin to the Crown, or any other fee-farm rent in the County of the City of Dublin, and during the continuance of the said term." The lane mentioned was probably that afterwards known as Crane-lane, but it is not marked as a formation on the map of 1610.

On the completion of the cranes and wharves and other erections, a proclamation was issued in 1621, detailing the customs and crantage of Dublin. This proclamation bears the following names—Adam Loftus Canc: La: Dublin, Brabazon, Gar: Moore, Arthur Savage, Geo. Shurley, Dominick Sarsfield, J. Blaner Hayset, Francis Aungier, John King, Fr: Annesley, and William Parsons.

A new Custom House is believed to have been erected in this locality about the period of the Restoration, with the addition of a council chamber as a place of meeting for the Privy Council of Ireland. There are entries of committees of the Irish House of Commons having met here in 1661, and of meetings of the committees of the House of Peers in 1662. In an order of the Privy Council of Ireland of the 19th of September, 1662, the Custom House quay was appointed the sole place of landing and lading the imports and exports of Dublin, the hours assigned being those between sunrise and sunset from the 1st of March till the last of September, and between seven in the morning and four in the afternoon during the remainder of the year. There are other records bearing upon the first Custom House and its regulations.

In 1707, however, it was found necessary to erect a new Custom House close to the river and adjoining the eastern side of Essex Bridge. The principal entrance to this building was in Temple Bar and Essex-street, opposite to the present Crampton-court. There was a side entrance at the bridge, descending by a flight of steps. This Custom House continued to be used till the opening of the present one in 1791, when the old edifice was converted into a barrack, and continued as such till a few years after the

opening of the present century. The old Custom House quay at Essex Bridge was limited to the length of the front of the Custom House. A very picturesque view of Essex Bridge on either side, including the old Custom House building with other buildings and the shipping in the Liffey, which at that time came up to the bridge, is shown in one of Malton's views. The old building was of brick, the two upper storeys of which contained fifteen windows. The lower storey, on a level with the quay, was an arcade of cut stone pierced with fifteen narrow arched entrances. There was a clock in the triangular space formed by the pediment at top, protected by projecting cornices, and on either side on the roof in front there were five dormers. As far back as 1711, when the council chamber was burned, there was a proposal put forward advocating the erection of the Custom House at the rere of Lazar's-hill. The author of this project wrote:—"It has been the admiration of some that the Custom House lately built was not erected on the Strand behind Lazar's-hill, since 'tis said one of the Commissioners declared he would give twenty thousand pounds per annum more for a farm of the Customs if 'twas placed there, than as it now stands; and the vast quantities of goods lately seized, besides the greater quantities presumed to be run and not seized, are strong arguments to corroborate that gentleman's opinion." The writer further adds that "her Majesty, by removing the Custom House as proposed, may not only save twenty thousand pounds per annum in her customs, which are daily run before they come to pass the Watch House on Jervis-quay, but save the yearly charge of that Watch House also, which being five hundred pounds per annum, will in ten years go near to pay the expense of such building."

It takes a long time to effect a reform, and much writing, agitation, petitioning, and angry feeling were excited before the old Custom House gave way to the new, upwards of three-quarters of a century later. Had a new Custom House been erected further down the river long before the present one was built, it is likely that the Liffey and the Harbour of Dublin would have witnessed their improvements sooner, though there may be a doubt respecting the growth of streets and public buildings on the upper reaches of the river. When Essex Bridge was the nearest bridge to the shipping it became the greatest bridge for traffic, and was generally used by rank and fashion as the most direct route from the south to the north of the city. It was during the existence of Essex Bridge, and before Carlisle Bridge was built, that our principal public buildings of note in the last century were commenced, and no wonder need be felt that a great many of the citizens and traders viewed with alarm the project of a new Custom House, and a new bridge further down the river, as both were calculated in a few years to shift the central lines of the city, and transfer a large amount of the concourse of rank and fashion, nobility, and gentry, &c., from the upper lines of the quays to the lower,—from Castle and Capel-streets to Sackville, Dame, and the future Westmoreland and other streets.

Before passing on further let us take a glance back at the rise and growth of the bridges over the Liffey, which have had a marked effect on the growth of the trade of



the city and port, and in the improvement of the suburban districts. The original "Old Bridge," now "Whitworth Bridge," was constructed of timber in 1215, pursuant to a licence granted to the city by King John. In 1385 this bridge fell, or was swept away by floods. In 1428 it was re-built by the Dominican Friars, who charged 1d. toll for carriages and beasts of burden. We dare say there were several re-buildings and repairs of the "Old Bridge" while it continued the only bridge over the Liffey in the city. In 1671 "Bloody Bridge," afterwards called Barrack Bridge, was built of timber, but was replaced by stone some years afterwards. The old stone structure continued down to 1858, when it was replaced by the present iron one called Victoria Bridge. Arran Bridge was erected in 1684, and Ormond (stone) Bridge in the same year.

Two years previous, however, Sir Humphrey Jervis constructed the original Ormond Bridge of timber, which lasted only two years. The Corporation began the re-building immediately after, and the second bridge was swept away by a flood, and replaced by the present Richmond Bridge, which was opened on Patrick's Day, 1816, having been upwards of two years in course of erection. Whitworth (new) Bridge, which replaced the "Old Bridge," was commenced in 1816, and Queen's Bridge, which replaced Arran Bridge, was finished in 1768, having taken four years in the re-building. Old Essex Bridge (the original one) was commenced in 1676 by Sir Humphrey Jervis—a large quantity of the stones that comprised St. Mary's Abbey being used in its construction. After being damaged by floods, and repaired on two occasions, it was re-built by George Semple, who completed the work between 1752-1755. After standing nearly 120 years was replaced by the present one opened in 1874. Carlisle Bridge was commenced in 1791, and finished in three years. The Metal (toll) Bridge was erected in 1816, and King's Bridge was begun in 1827. This list includes all the bridges over the Liffey in the immediate city except the Swing or Swivel Bridge finished in the present year, which allows the shipping to pass up to the new or remodelled Carlisle Bridge, in course of completion by the Port and Docks Board. Sarah Bridge, which spans the Liffey at Island Bridge with a single elliptical arch 104 ft. in diameter, is not yet a city bridge, but through the growth of the metropolis it will at no distant date be reckoned one, and undergo most likely a remodelling.

Although the river was embanked early in the eighteenth century it was not until the re-building of the walls in their present form—walls stated to be 12 ft. thick at the foundation, and faced with native granite—that the Liffey and the line of quays presented a truly improved appearance. This last admirable embankment was several years in progress, and was only completed in the first quarter of the present century. The recent additions and extensions at the North Wall and on the south side of the river may be alluded to hereafter. Before the construction of the granite wall embankment mentioned, the lines of the quay walls were interrupted here and there by unsightly buildings. Ferry stations existed between Essex and Carlisle Bridges before the erection of the latter. A look at one or two plates in Malton's "Views of Dublin," will afford an insight of the jagged

appearance of some portions of the river's banks up and down its length towards the end of the eighteenth century. Above Essex, Ormond, and the "Old Bridge" on the south side, antiquated and ruinous houses, half-timbered, are to be seen overhanging the river, and the water washing against their base. Although the water of the Liffey was polluted to some extent in the upper reaches of the river in the eighteenth century, by waste from manufactories and nuisances from shipping, the abuses of the sewerage system of the present century did not exist. The excreta of privies, and other noisome refuse, did not find an outlet in the river, as it does through our present-day water-carriage system in connection with our closets and houses. Drinking water for shipping purposes and for home use and for voyages was raised at Island Bridge towards the close of the last century, and esteemed good. The condition of the river, however, from time to time occupied the attention of several persons, and various opinions were ventilated for making the river more navigable upwards as well as downwards, and keeping it clean.

The following extract from "Observations on Mr. Archer's Statistical Survey of the County Dublin"—a work by Hely Dutton, published in 1802—is worthy of note:—"I do not know if it is possible to dock in the River Liffey; if vessels could be at all times water borne, it would be a great convenience; possibly the public sewers of the city might be injured, or possibly mountain floods might prevent the adoption of the idea; yet I imagine it might be contrived by means of ample overfalls, to prevent any danger on this head. I merely throw out the hint for the consideration of those better acquainted with such matters than I pretend to be; the inconvenience to the sewers might also be prevented by main sewers parallel to the river, which, by turning the river through them, would at times be kept clean, as, from the contraction of the stream, the force would be augmented."

Here was a suggestion for a main drainage and parallel sewers long before we heard it ventilated by modern municipal engineers. Cleansing the upper reaches of the river or dredging it of filth for sanitary and public health purposes was not thought of in the last century by Corporation or Ballast Board, nor indeed in the earlier portion of the present century; but the latter board certainly dredged with good effect the lower reaches of the river and the harbour for navigable purposes. The soil raised by dredging the river during the last century and a-half has contributed to fill up the space occupied by the Custom House, Commons-street, Mayor-street, &c., on the north side, and Great Brunswick-street and other places previously mentioned on the south.

In 1728, when Brooking's "Map of Dublin" was published, the whole of the ground known as the "North and South Lotts" was covered with tide. The name of "Lotts" originated in a resolution of the Lord Mayor and citizens to apportion them out and "draw lots for them"; the condition or stipulation was that they should be enclosed from the river by a wall, and filled up. The land reclaimed from the action of the Liffey and the tide, and filled up, may be traced for a long distance on the north side of the river, undulating along the line of the quays, and extending to Ballybough Bridge at the mouth of the Tolka.

## THE SANITARY COMMISSION.

We give elsewhere, in continuation of some brief particulars in preceding issue, further portions of the proceedings of the Government Inquiry that opened in Dublin on the 30th ult. At present it is not our intention to discuss at length the bearings of the inquiry, or to forecast its possible outcome. The duties of the Commissioners have, in our opinion, been efficiently performed, and the inquiry impartially conducted throughout. All evidence of a practical and useful character was admitted, and very little restraint was put upon any of the witnesses, each and all having their say on behalf of their respective interests.

The several main drainage schemes projected from time to time—both the accepted and the rejected of the Corporation—were again explained by their proposers and supporters, and each gave rise to various questions. Drainage,—main and house,—water supply, the condition of tenement houses, public and domestic scavenging, paving, slaughter-houses, cow sheds, drains, piggeries, the state of the Liffey, the condition or composition of the soil of the city, and other kindred subjects, were passed under review, and in some cases most valuable evidence was elicited. The weight of the engineering and drainage evidence will doubtless devolve upon Mr. Rawlinson to report upon, and he will not lack material upon which to base his conclusions.

Throughout the inquiry several matters were made still more clear than ever:—That the Liffey is at present a filthy open sewer or elongated cesspool, and its condition is highly dangerous to the public health; that several thousand of the tenement houses of Dublin in which the industrial and working classes live are in a most unsanitary state, and are alike a common danger, and are indeed in many cases hot-beds of disease; that several of the houses of the gentry in some of our private streets and squares are dangerous too, from their defective drains; that the slaughter-houses are a scandal and a nuisance; that the streets are badly scavenged; that the domestic scavenging as at present conducted is a great evil, and needs instant reform; that the Vartry water is comparatively pure, and fit for drinking and other domestic purposes; that the canal water is not pure; that Dublin needs the carrying out of several well-digested artisan dwellings schemes, for the better housing of the people; that the hospital accommodation is open to improvement; that the death-rate is high; that the humbler classes might be helped by the municipal authorities and their wealthier fellow-citizens to improve their sanitary condition; and (without carrying our enumerations further), that Dublin is capable of being made one of the most healthy cities in Europe, if her local authorities are willing to do the needed work, and are empowered to do it.

For upwards of twenty years, in the pages of the IRISH BUILDER, we have preached in and out of season the creed of the sanitarian—well-built houses, good drainage, pure water, wholesome air, and ventilation. The evidence adduced at the inquiry corroborates all, and in some instances more than, we have written in respect to the sanitary condition of the city. For the last ten years particularly we have been constantly drawing public attention to the disgraceful and dangerous condition of the tenement houses,



and also to the character of the new speculative buildings erecting in the suburban districts. Up till the time of our writing little attention was given in respect to these last-named dwellings at the Commission, and very small the evidence thereon submitted. There are evils in connection with several new low-class buildings quite as bad as those in connection with the old.

Though good will result from the holding of the Commission, and certain measures of improvement are likely to be initiated and carried out after the Commissioners issue their report, still we fear a considerable time must elapse before Dublin is made healthy and presentable. Large schemes of improvement are always possible in London and in other large English and Scotch cities and manufacturing towns, and particularly in London, from its position and wealth, these measures of improvement can be expedited. Unless some great change takes place in the conditions of rule and other matters, improvements here are destined to proceed slowly. The most urgent of them, however, can and must be undertaken first. An economical but at the same time a well-digested an efficient scheme of main drainage is a necessity, and this measure will include the purification of the Liffey. The improvement of the dwellings of the people is the next, or rather if possible it should proceed hand in hand with the first. Both of these improvement schemes mean a large expenditure of moneys, and this again implies increased rates. Health, however, is the primary consideration—health, personal and public; and until the public health is firmly and satisfactorily established there can be no personal safety. There can be no longer any doubt as to the sanitary requirements of Dublin.

#### OUR ILLUSTRATIONS.

##### THE O'BRIEN MEMORIAL, SAN FRANCISCO.

WE give an illustration of the family mausoleum of the late Mr. W. S. O'Brien, which has been erected in the Cemetery, San Francisco, California. The dimensions of main portion are 32 ft. by 22 ft., on the ground or terrace level, and rising to a height of 17 ft. A chapel, 12 ft. square, forms the centre of the building, having an altar with rose window in western gable. This window, which is opposite to the entrance, is to be filled with emblematic subjects in painted glass. The chapel rises above the main structure some 24 ft., the total being about 41 ft. in height; the vault itself, as shown by the miniature plan, contains twelve catacombs, six on either side of the entrance—two tiers in height. There is a crypt, 10 ft. in height, built on a concrete foundation bed 3 ft. in depth, supporting the catacombs and the floor of the mausoleum proper. The latter, with the external approaches, are laid in tessellated pavement. The upper portion of the chapel, terminating with an ancient cross characteristic of the style, is pierced with twelve clear-storey windows, filled with stained glass, giving effect to the interior-ribbed and moulded groining. The carving of the figures will be of the highest order of art, and appropriate subjects further to be studied by the architects. The boundary wall, steps and terminations, together with the entire structure, are of California material—granite and black

marble, variously polished, as desired by the late Mr. O'Brien. The style of architecture was adopted by him in a competition of architects. It is a combination of the transition period, from what is termed by the profession, "late Norman and early English." Wrought iron or bronze entrance gates and inclosed railing will perfect the memorial. The design is by Messrs. Laver and Curlett, architects. We may here mention that Mr. O'Brien was a member of the firm of Flood and O'Brien, the well-known wealthy mine owners of San Francisco.

##### NEW CONVENT, MELBOURNE.

THIS convent is to be built from the designs of Samuel F. Hynes, M.R.I.A.I., architect, 30 South Mall, Cork, on a level site in Melbourne, for his Grace Archbishop Goold. The buildings are disposed round a court, so as to be well ventilated and lighted. The right wing of the building, seen in the view, is planned for the accommodation of the Nuns of the Presentation Order. In the centre is the chapel, and the left wing is appropriated for the reception of boarders; at the rear are located the offices, &c. The architect has been very careful of the sanitary arrangements. The external facing of walls is to be of neatly-hammered stone, with chiselled dressings to windows, &c. The building is designed in late thirteenth century Gothic freely treated.

##### WONDERFUL EDUCATION.

It is most pleasing to remark the immense strides that intellect is taking in its onward march. We had scarcely recovered the astonishment at reading of the successful efforts being made to enable the dumb to speak, when we receive intelligence of teaching the blind to see, by a notice in *Irish Times* of 9th inst., of a visit paid by the Viceregal party to the institution at Merrion. We find that "The distinguished party examined the *printing*, sewing, knitting, &c., done by the blind children, and then proceeded to the industrial school department, whose young inmates manifested great delight at seeing the Duchess, whom they at once recognised, and the other distinguished visitors. About half-a-dozen of the younger girls presented with evident delight two splendid bouquets to her Grace and Lady Northcote." Now, as printing necessitates, of course, a seeing of the manuscript, and the young inmates manifested "delight at seeing the Duchess," we may take for granted that some wonderful method of education has been arrived at. \*

##### TOUGHENED GLASS SLEEPERS.\*

THE glass is moulded into various forms to suit the different requirements, the cooling of the glass being so regulated that the radiation from each point of the surface corresponds to the thickness of the glass, thus enabling the casting to be equally affected throughout when undergoing the tempering or hardening process. The regulation of the radiation or absorption of the heat in the thicker parts of the casting is done by having iron moulds hollow, and by circulating cold water or cool air at those points where the glass is thickest, so that the casting cools equally all over.

The mode of toughening the glass is both curious and instructive, affording as it does a complete contrast to that of steel. The glass is heated to a high temperature, and then plunged into a bath of cool oil or other liquid, the result being that the glass becomes converted from its own characteristic brittle-

ness to the remarkable tough fibrous material known as toughened or tempered glass; but to produce the desired effect, and obtain the full advantages of the toughening process upon articles of great strength and thickness, Mr. F. Siemens has found that the hardening or tempering can be effected in the moulds themselves; firstly, by carefully protecting the glass from coming in direct contact with the metal mould, to prevent the chilling of the surface of the glass; and, secondly, by the use of the hollow moulds before spoken of, for maintaining a uniform temperature all over the castings during the hardening. The temper is modified in these thick castings by passing them through an annealing oven.

The moulds are chiefly protected by layers of wire gauze, perforated metal, or plaster of Paris, varying in layers or thickness according to the rapidity and energy required in tempering, with the nature and composition of the glass—this energy being increased at the thick parts of the casting before alluded to by the circulation of cool water or air through the cast-iron hollow mould. So far as experience has shown, all kinds of glass are equally affected by the process.

The toughening process, as well as the hollow moulds, are the patent of Mr. Frederick Siemens, of Dresden, and recently brought out by that gentleman to great perfection by the simple and inexpensive means above alluded to. The first cost of this specially-prepared material will not exceed that of cast iron, but the specific gravity of glass is only one-third that of iron, and its strength for all practical purposes is as great. A large out-put is anticipated, and in this way it is calculated that the first cost of glass will be considerably less than that of iron; and, by a similar calculation, can be shown to be cheaper than wood. It is asserted that these glass sleepers will, as far as one is able to judge, last a very long time, being neither subject to corrosion nor decay. Under these circumstances, it will be unnecessary here to enter into any calculations to prove the enormous saving that will be effected in the maintenance and renewal of permanent ways. Such a fragile material as glass has hitherto been looked upon as useless for purposes where great strength is required; but impossible as it may sound, the toughened glass is almost as strong as iron, whilst it possesses greater durability. Its qualities certainly deserve a fair trial and investigation, and the time may come when we shall see not only glass sleepers, but glass tools and implements, eaves troughings, or spouting.

Some of these glass sleepers are laid down upon the North Metropolitan Tramway. They are laid longitudinally in 3 ft. lengths, 6 in. by 4 in., and are specially formed on the upper surface to allow of the rail exactly fitting. The average transverse resistance of the sleepers, tested at Mr. Kirkaldy's works in Southwark, supported at 30 in., was found to be about five tons.

Mr. Bucknall, the inventor of the sleepers, proposes to make them out of blast furnace slag under Mr. Bashley-Brittain's process, combined with the toughened process of Mr. Siemens. After describing to the writer the difficulties he has had in getting his experiments carried out in England, the inventor mentioned, among other things, that the glassmakers to whom he applied would not undertake any experiments unless all expenses were paid, and that these manufacturers would not make the moulds or presses for the process, but recommended other firms. On application to the pressmakers, however, he got a quotation asking between £70 to £80; and it was stated that it would take three months to invent, and that he must be responsible for any extra charges made. Under these circumstances, he says, "I gave up in despair; but, having casually heard of the Siemens process, I got an introduction, and was put in communication with Dresden, and within a week found myself at the glass works of Mr. F. Siemens in that city. In another week, a wooden model,

\* From a paper read before the Iron and Steel Institute at Liverpool, by Mr. C. Ward.



which cost 2s. 6d., was produced, and an iron mould made from it, which cost about 30s., and, two days afterwards, I held in my arms the first baby glass sleeper; but, so heavy was this first-born, that it suddenly slipped from my grasp, and fell with a heavy thud upon the flags. I feared for the safety of my darling's carcase, but, upon careful examination, I found it to be unimpaired. There its longitudinal form lay, upon the ground, not dead, but a veritable sound sleeper, still living, and, probably, worth more than a dozen dead ones."

### NEW FURNITURE WAREHOUSE, HENRY-STREET.

With "improvements in Henry-street" during the past few years, all folk passing through that busy avenue of our city are already familiar—monster establishments of costly character, and in various branches of trade, have sprung up, and all reaping a fair harvest notwithstanding the general depression prevailing.

A crowning feature in the street is the new and very attractive warehouse of Messrs. William Brunton and Co. at No. 43, just completed. A cursory glance even from the exterior is almost sufficient to give an idea of the extent of the area provided for the display of the goods of this well-known firm. The entire building from basement to attic will be utilised.

The premises present a frontage of 56 ft. in height to parapet, with French roof over same of 10 ft., and a breadth of 32 ft. The entire front is faced with Bridgewater red brick, with dressings of limestone and terra cotta. The shop façade is supported on limestone pillars in one length, the whole superstructure resting on iron girders with metal pilasters.

The principal or shop floor extends to about 80 ft., over a portion of which is a lantern light. The three upper floors and attic extend to about 55 ft. The walls throughout are sheeted, and painted in a delicate shade of green. The ceilings are of pitch pine in well-arranged panels, and highly varnished. The staircases (which are curved at foot) are 7 ft. in width, having handsome newel-posts and balusters. The shop doors are of American walnut, the upper portions of which and sash over are filled in with lead lights and ornamental cathedral glass. Instead of shutters, the shop front is enclosed by a light railing of neat pattern, and there is a gate to entrance porch of the same character. A hydraulic lift has been supplied by a Glasgow firm, the cage of which is 8 ft. by 4 ft. To work this lift the Vartrey water has been brought into requisition, laid on from street main. The entire floor of basement has been laid in asphalt by the Mineral Rock Asphalt Company, Hanover-street, under Mr. Fottrell's patent.

The following classification will be adopted in these spacious and well-arranged concerns: The first floor will be devoted to dining-room, library and hall requisites. The second to carpets, looking-glasses, window curtains, &c. The third to drawing-room furniture, of which there will be a grand display. In the upper floor will be found bed-room furniture in all its varieties. The basement will include iron bedsteads, also servants' room and kitchen furniture.

By a notice which will be found in our advertising columns our readers will perceive that the opening takes place to-morrow, Thursday, 16th inst., and from what we have

seen of the stock to be submitted, a visit will prove satisfactory.

The building has been erected from the plans of Mr. G. P. Beater, Lower Sackville-street, by Mr. George F. Tyrrell, contractor, Russell-place.

### THE OUTCOME.

A Royal Commission, in the City Hall,  
Heard "dear dirty Dublin" delineated  
By engineers and civic rulers, great and small,  
And many-sided doctors congregated.

The doctors differ'd much, and so did engineers,  
And still the outcome of the great contention  
Is—Dublin's health is quite as bad as it appears,  
And all her ills will end by—their prevention!

Come, Royal Commissioners Rawlinson and MacCabe,  
With Saxon common sense and Celtic mother wit  
Unite your powers, and prove that each adult and babe  
May live as well in Dublin, as outside of it.

Over the Water, Oct. 14th, 1879. H. C. C.

### THE RELATION OF FINE ART TO SOCIAL SCIENCE.

In the Art Section of the Social Science Congress, on the 7th inst., the President (Sir Coutts Lindsay) delivered to a large audience an interesting address "On the Relation of Fine Art to Social Science." He said it was unnecessary on that occasion to urge any plea for the development of that region of the human intellect which was comprised under the term art. There was a time in Great Britain—and that not very long ago—when it would have been the duty of their president to put forth his best endeavours to such a purpose. The cultivation of art was narrow, partial, and one-sided, a great segment of the circle left arid, and the part that Providence had allotted to art in the progress of mankind miserably ignored. In this respect the mind of the nation had undergone a great change, and he needed only point to the proceedings of the meetings of this society for the last half-dozen years as a convincing proof of the altered judgment of the country. In enumerating the chief areas that formed the region of art, and which might justly come under their consideration to-day, it was not that any single mind could deal with them in detail, but that it was well to keep before us the vast extent of the realm over which art held rule. First and foremost stood poetry, with all her works of fiction. She was probably the oldest as well as the noblest of the sisterhood. Then came music. These two addressed themselves most clearly to humanity, inasmuch as they required no machinery, save what nature gave, to make their influence felt. After these came the triune arts of architecture, sculpture, and painting, which, though they appealed to us through the eye, could not exist except by a process of construction wherein mechanical knowledge became a necessity. Under these great heads all minor arts must rank. It was from those concrete developments that humanity derived an infinite refinement, producing and reproducing by combination. Art no less than science grew by a natural law, and developed out of the stem of the past. Art was a reflex of the time and the race to which it belonged. A large section of our modern artists looked down upon the works of the past as idols that should have no influence in the living world, whilst others bowed and worshipped blindly. Fie upon both extremes! In a survey of the arts he enrolled poetry at the head of all art. To sever poetry from her sister arts was to deprive her of her supremacy and cripple the whole college. It had been urged of our English race that it was deficient in artistic power, and that, having produced no great schools of art during the flower of its youth or the flower of its manhood, when art led the van, no development of past seeds was likely to occur. Sir Coutts Lindsay then referred to the arts of this country during the present generation. The poetry of

the present generation had a marked character of its own—one widely different to that of its immediate predecessor. Of all the living poets Tennyson was the best exponent of our times, as he was the Laureate not only by appointment, but through the sympathy of his fellows. There was scarcely on record the life of any poet so completely in harmony with his generation, for which reason he had enjoyed a more universal popularity than had fallen to the lot of others. I fear (continued Sir Coutts Lindsay) it must be admitted that England has but a poor school of music. The early promise that she gave was not fulfilled, and it withered unaccountably in the last century. How Handel, who was almost an Englishman, and who produced his finest works for us, should have left no pupils that might be called a school is to me a source of astonishment; for, whilst our race has originated but little music, it is amongst the most appreciative in Europe. No doubt it would not be difficult to make out a roll of English musicians, and dub it by the title of school, also a long list of oratorios and operas, some of which you may have heard spoken of, or listened to on occasion, but few of them can be counted amongst the masterpieces of music, nor are they fit to represent the nation. There is a living exception to this general deficiency in Arthur Sullivan, the composer of the "Light of the World," and founder of a great school of music. In turning to architecture you will at once perceive that it has been overwhelmed with the work of our generation. Churches in thousands have been constructed over the breiath of the land, our old cities are crowded with new public buildings, vast sums have been expended in the restoration of our cathedrals, whole districts have been laid under bricks and mortar, throughout the country railway stations are scattered like peas over a floor, parish churches have been rebuilt, gentlemen's houses enlarged, and this has proceeded for many years with the breathless prosperity of the nation. This truth appears, that the present has no architecture, but calls from past times with the most perfect indifference. England does not stand alone in this respect. The same tendency is more or less visible in the rest of Europe. The architecture of our age has yet to be constituted, and this is the heart of the matter. I do not think it possible that a Government school of sculpture can ever flourish in this country, although England has produced and will yet produce many famous sculptors. A constitutional Government—how I hate the term in connection with art—is often niggardly ignorant and meddlesome, yet sculpture should be more dependent for its support on national than on individual employment. There is no love of sculpture in the nation, and, what is equally discouraging to our sculptors, the dignity of their art is ignored by their fellow academicians, who have omitted to provide in the academy even an elementary school of sculpture to guide the early efforts of its students. From sculpture we finally turn to painting, which is at present the spoilt child of the nation. Our painters and sculptors now began to produce in both arts alike, acquiring fresh knowledge in the one from the practice of the other. Sir F. Leighton, Mr. Watts, and Mr. Richmond have each taken first rank among the sculptors as well as among the painters of their time. In conclusion, Sir Coutts Lindsay dealt with the rise and progress of the pre-Raphaelite movement, at the head of which he placed Mr. Watts. Painting and poetry were nobly blended in the efforts of these men.

**FEMALE EDUCATION.**—At a distribution of prizes, on the 11th inst., at the Ladies' Collegiate School, Belfast, Mr. James P. Corry, M.P., who presided, and who is one of the Honorary Commissioners under the Intermediate Education Act (Ireland), spoke in high terms of the operations of that act in the first year of its existence, referring specially to the success in connection with the education of young ladies.



# DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.\*

## LECTURE III.

(Continued from page 300.)

Of course, for drinking water, we ought to choose a source of supply that is unpolluted. As Mr. Simon has said, "It ought to be an absolute condition for a public water supply that it should be uncontaminable by drainage." We ought not, then, to take confessedly impure waters and try to purify them, so as to make them fit to drink. On the other hand, it is obviously unnecessary to use very pure water, except where there is a superabundance of it, for washing the streets, flushing the sewers, and supplying the water-closets, and so it may be advisable in some places to have a double supply of water, one of pure water for drinking and cooking, derived, for instance, from artesian wells, and the other of an inferior character for other uses. This has been lately proposed for London, and whatever may be said against it on the score of expense, I think most people will agree that it will be very desirable to have water to drink which has not been first polluted with sewage and then filtered. The advantage of this plan too, was perfectly well recognised by the ancient Romans. Frontinus tells us that it pleased the Emperor (as he puts it) to order that the water supplied by certain aqueducts should be furnished to the people for drinking purposes, while that supplied by some others, from its being occasionally turbid and of inferior quality, was to be used for "viler purposes."

As, however, we do not, as a matter of fact, in the majority of instances, imitate the ancient Romans, either in this particular or in bringing pure water from a distance to supply the towns, but use the nearest water that we can get, whether good, indifferent, or bad, it is of course necessary for us to do all that we can to purify it before use. This is done on a large scale by filtration through layers of sand and gravel, after the coarser suspended matters have been allowed to deposit themselves in a settling tank. I shall not describe this method of filtration in detail here, as it is a little beside the scope of these lectures, but, as the principle on which it acts is the same as that upon which the success of most forms of domestic filter depend, I may say a few words about it once for all. The experiments made by Dr. Frankland for the Rivers Pollution Commissioners showed that when foul water was passed through layers of porous soil, or sand and gravel, the amount of organic matter in it was reduced, if two conditions were fulfilled; these are, that the filtration be downwards and intermittent. It was found that if the filtration were upwards or continuous no such purification occurred after a time. The explanation of these facts is simple. The filtering material acts in two ways. It separates mechanically suspended matters in the water that are too large to pass through the pores of the filtering material, and it also acts chemically by means of the oxygen of the air in its pores, when, as the water flows downwards through the filtering material, it percolates through by means of a number of very small streams, and so is brought into the most immediate contact with the oxygen of the air in the filtering material. Thus, the organic matter and ammonia dissolved in the water are oxidised with the production of nitrates and carbonates, and it is certain that by this means a considerable quantity of organic matter is reduced to a harmless condition. Domestic filters, clearly, ought not to be required. The water ought to be delivered sufficiently pure to drink.

And here I would remark that the average quality of a drinking water supplied to a place is not the matter of most importance, and, indeed, is rather a fallacious guide. What we want to know is the quality of the worst sample that the public are likely to be

supplied with at any time. But it is not only because the water supplied varies in purity, in most instances, sometimes considerably, that domestic filters are useful, but because, as I have before remarked, especially where the intermittent system of supply is in vogue, the water, even if delivered pure, is rendered impure in the houses themselves by being stored in filthy receptacles. The majority of the filters in domestic use rely upon the principle of downward filtration. In a few, the water is passed upwards through a filtering material. The chief materials used are animal charcoal—vegetable charcoal is not a good material for filtering purposes—silicated carbon, carbide of iron, spongy iron and sand. When animal charcoal is used, it must be specially prepared and well-burned. If any of the animal matter be left in it, it becomes, as has been shown by the Rivers Pollution Commissioners, a breeding place for myriads of small worms which pass into the water. With the other materials mentioned, there is, of course, no risk of this, as they are made of burnt shale, or taken from the interior of blast furnaces. Some filters are placed inside the cisterns, so that all the water that is drawn off has to pass through them. These are placed on the main-water pipes themselves, or in the taps. One of the former kind, known as "the self-cleansing filter," in which the suspended particles in the water are prevented from getting at the filtering material by a ring of compact silicated carbon, and the water itself is made to wash the outside of the block of filtering material through which it has to pass. My experience goes to prove that filters that are always under water, cease to purify the water after a time, unless means are taken for aerating them, and in many instances I have known water to be rendered more impure by its passage through a filter which had been used in this way for a considerable time. Of forms of domestic filter, the glass decanter with a solid carbon or silicated carbon block has the great advantage that every part of it can be seen, so that it can be kept scrupulously clean. These filters will go on working perfectly well for an almost unlimited time, scarcely anything being necessary beyond cleansing the surface of the block once now and then with a hard brush. It is a very good plan to have a kind of double filtration. Sometimes the water is made to pass through a piece of sponge before falling on to the filtering material with the view of arresting the coarser suspended matters. It is far preferable, however, to use the carbon block for this purpose. In Prof. Bischoff's spongy iron filter the filtering material is always under water, and the action which goes on in it is certainly quite different to that which I have explained, and is as yet little understood. The River Pollution Commissioners have expressed the highest opinions of this substance as a filtering material. On account of the fact that the water dissolves a little of the iron on its passage through the spongy iron, it is made to pass through a layer of prepared sand afterwards, with the view of removing this, and then, in order to aerate it, it is delivered through a very small hole in a fine stream into the pure water receiver. It will thus be seen that it is rather more complicated than some of the other forms of domestic filter. The slight trace of iron that remains in the water can hardly be considered a disadvantage, at any rate in large towns.

Lastly, I must notice the filter made by the General Sanitary Engineering and Ventilating Company. In this, by an ingenious contrivance, the air passes to and from the filtered water chamber through the filtering material itself, and not by means of a small channel in the china or earthenware vessel holding the filtering material, as is the case in other filters. The water first passes through a silicated carbon block, and then falls in the form of a shower on to the surface of a layer of some loose silicated carbon supported upon a perforated plate which is not flat, but has elevations here and there on its surface. The result is, that not only

when the water is drawn off by the tap does air pass through the filtering material into the filtered water-chamber, but also as the water flows through into this lower chamber it forces the air out through the filtering material itself, which it is enabled to do by means of irregularities on the surface of the plate upon which the filtering material rests. If this plate were quite flat as it was heretofore made, and if there were no air-pipe from the lower chamber, a balance would be established, and both water and air would cease to pass through the filtering material.

When rain-water is used for drinking, and even for other domestic purposes, it is advisable to filter it, and the best form of filter for this purpose is one devised by Professor Rolleston, of Oxford. The tank to receive the rain-water has two compartments, divided from one another by a vertical partition, and each having a horizontal layer of filtering material, as charcoal, placed on a perforated support half-way down the tank. The rain-water pipe from the roof is brought down through this filter bed nearly to the bottom of one of the compartments. The rain-water then has to pass upwards through the filtering material in this compartment over the partition into the second compartment, and downwards through the filtering material there, into the lower part of that compartment, where there is a tap from which it may be drawn off. An overflow pipe is, of course, provided, so that the water cannot rise above a certain level.

In conclusion, I need only say that the number of instances in which epidemics of typhoid fever, cholera, and some other diseases, have been traced to the use of impure water, or of milk contaminated with foul water, must make it evident to everyone that it is of the greatest possible importance that we should have uncontaminated sources of water.

## THE QUEEN'S COLLEGE, CORK.

FROM the annual report just issued by the president (Dr. Sullivan) we learn that besides transactions of learned societies, scientific and literary periodicals, and similar serial publications, the library was increased during the year by more than 1,100 volumes. Of these 322 volumes were purchased, and the rest presented. The latter included Mr. Crawford's third gift of about 700 volumes. The "Crawford Library" now contains nearly 1,600 volumes, and is especially rich in the Monumenta Historica of the different nationalities of Europe. The college library, owing to the facilities afforded to scholars and students, especially since the formation of the Crawford Library, is now regarded as the public library of the South of Ireland. In order that it may fulfil this new function as well as that for which it was primarily intended, increased accommodation must be provided at once. This may be done either by building a new library or by building a new natural history museum, and converting the present museum into a students' library and public reading-room. Mr. W. H. Crawford has fulfilled his offer to give £2,750 to provide one-half the cost of enclosing and laying out the additional land recently acquired by the college as a botanic garden, of building suitable plant-houses, and making a much-needed new entrance and road to the college. The new entrance bridge and road have been completed and opened to the public. The plant-houses are completed, and will be ready to receive plants in a few weeks. In connection with the plant-houses a biological laboratory adapted for chemical, histological, and other experiments on plants and animals has been built. Provision has also been made to enable a lecture-room and a suitable room for the herbarium to be hereafter attached to the plant-houses and laboratory. The ground for the new botanic garden has been levelled, improved, and laid down in grass preparatory to the formation of the beds. Considerable progress has also been made with the erection of the observa-

\* By Prof. W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.



tory. To complete the building, and furnish it with necessary instruments will cost about £2,500, towards which Mr. W. H. Crawford has given £1,000, and the Duke of Devonshire £500. A small tower, provided with a room for meteorological instruments has also been built. Owing to the want of funds it cannot be furnished at present. The new Materia Medica Museum has been completed, and fitted with cases, and the first instalment of a fine collection of drugs has been arranged. The new anatomical and pathological museum has also been completed.

### SEASIDE RESIDENCES AT CARRIGMAHON, COUNTY CORK.

WE understand that it is intended to erect sixteen blocks of first-class houses at Carrigmahon, on a site between Monkstown and Glenbrook, overlooking the river Lee, and amidst most picturesque scenery. The situation is within five minutes' walk of Glenbrook and Monkstown pier and the Royal Victoria Baths. To expedite the carrying out of the work, Mr. Richard Barter, of St. Anne's, has recently made arrangements with Lord Do Vesci for an extension of his lease, his lordship having approved of the plans prepared and submitted to him by Mr. Kearns Deane Roche, C.E. and architect, Cork. This project, when carried out, will provide the citizens of Cork with seaside residences of a charming description. Owing to their being easy of approach from the city—an all-important consideration to business men—they are sure to become favourite places of abode, and threaten to rival Crosshaven, Aghada, and Currabinny. The proposal has been started by Mr. W. P. Clarke, estate agent, Marlborough-street, in whose hands Mr. Barter has placed the arrangement of the entire work. The plans can be seen at Mr. Roche's office, South Mall. Spring water can be supplied to the tops of the houses without any difficulty. In consequence of the conformation of the ground the sewerage system can be made perfect, whilst the best building stone can be quarried close to the site.

### DUBLIN MAIN DRAINAGE.

HASSARD AND TYRRELL'S PLAN.

THE following is taken from a document laid before the Royal Commissioners on the Sanitary State of Dublin:—

Now that the Rathmines and Pembroke Townships Commissioners are constructing an independent work of main drainage for the relief of their own districts, the conditions affecting the city and the remaining townships have been materially changed. Formerly, the high level area—that is, the area from which sewage could be carried off by gravitation—was about 3,480 acres (1,640 acres in the Rathmines and Pembroke Townships, and 1,800 acres in the city)—the low level area from which it was necessary to pump both the sewage and rainfall being about 4,650 acres. As the matter now stands, out of an area to be drained of about 5,000 acres within the municipal boundary, and the townships of Kilmainham, Drumcondra, and Clontarf, there remain only, on both sides of the river, about 1,800 acres, from which the sewage can be carried off by gravitation, presuming the Corporation project of collecting the sewage at the North Bull to be carried out, that is—out of an area divided into 25 parts, the sewage of 9 parts can be carried off by gravitation, whilst that and the rainfall from 16 parts must be pumped, or, in round numbers, the sewage of only about one-third of the area now remaining to be dealt with can be carried by gravitation. Under these circumstances, as a pumping establishment capable of dealing with two-thirds of the area is indispensable and must be provided, we maintain that it is better and cheaper to abandon the projected high level system of sewers, to somewhat enlarge the low level sewers, and to pump the whole volume of sewage. Instead of constructing enormously-expensive and difficult works for collecting the sewage at the North Bull, in the shape of siphons 2,300 ft. in length, across an arm of the sea, large impounding reservoirs on a sand bank, surrounded on all sides by the sea, where it was proposed to carry the foundation to

depths varying from 11 ft. to 15 ft. below low water, and outfall pipes 2,900 ft. in length, to be laid for the most part below low water, it is better and cheaper to pump to a greater height, and to construct an outfall culvert to the eastern side of the promontory of Howth, and there deliver the sewage in a constant stream into the sea at all times of tide, at an uninhabited and precipitous part of the coast, where the water is deep, and where the tidal currents run with considerable velocity. In passing Dollymount, the outfall culvert would be at sufficient altitude to admit of the sewage being utilised, or applied to about 400 acres of the North Bull sands. The course and nature of the proposed works are as follows:—Commencing on the south side of the Liffey, a sewer No. 1, varying from 3 ft. 6 in. to 5 ft. in diameter, would be constructed from Maquay Bridge, at the east end of Grand Canal-street, to Burgh-quay, passing in its course along Grand Canal-street, Great Clarence-street, Brunswick-street, Sandwith-street, Townsend-street, and Hawkins-street. From Island Bridge to Burgh-quay, a sewer No. 2, varying from 3 ft. 6 in. to 5 ft. in diameter, would be constructed, passing along Victoria-quay, Usher's Island, Usher's-quay, Merchant's-quay, Wood-quay, Essex-quay, Wellington-quay, and Burgh-quay, uniting with sewer No. 1 at Burgh-quay. These two sewers would intercept all the sewage from the south side of the city, and provision would be made for a special outlet for the Poddle stream. Flood water outlets for discharging into the river part of the rainfall of extraordinary storms would also be provided. The sewers uniting at Burgh-quay would pass under the Liffey, by duplicate siphons, on the eastern side of Carlisle Bridge. These siphons would be so constructed as to admit of their being emptied and examined at any time. For the north side of the city a sewer No. 3, varying from 6 ft. to 7 ft. in diameter, would be constructed from the syphon chamber at Eden-quay to the pumping station proposed to be placed on the northern side of, and adjacent to, the Clontarf-road, in a plot of ground between the Great Northern Railway and the Howth-road where an eligible site exists. This sewer would pass along Beresford-place, Store-street, Amiens-street, under the Royal Canal and Midland Great Western Railway, by the works already there constructed by the Corporation, the North Strand, and through some private property and fields from Ballybough to the pumping station. From Parkgate-street, a sewer No. 4, varying from 3 ft. 6 in. in diameter, would be constructed, passing along the Esplanade, Barrack-street, Tighe-street, Phoenix-street, Pill-Lane, Mary's-abbey, Upper, Middle, and Lower Abbey-streets, and would unite with sewer No. 3 at the south end of Lower Gardiner-street. These two sewers would intercept all the sewage from the north side of the city. Provision would be made for a special outlet for the Bradogue stream, and for storm-water outlets as on the south side of the river. For the drainage of the Clontarf Township, a sewer No. 5 is proposed to be constructed along the Clontarf road from Seapoint-terrace to the pumping station. These five main sewers would have an aggregate length of 8 miles  $3\frac{1}{2}$  furlongs; the inclinations would be very favourable, varying from 8 ft. to 2 ft. 8 in. per mile, and they would effectually intercept the sewage of the whole locality. At Clontarf the collected sewage would be pumped to a height of 27 ft. 6 in., or to an altitude of 21 ft. above the Ordnance datum, into the main outfall sewer. The engine power necessary for the maximum duty of pumping sewage and rainfall will amount to 270 horse-power, and, with spare power, to 360 horse-power. The annual expenses of pumping will be about £3,600. The main outfall sewer No. 6 would commence on the eastern side of the Great Northern Railway, and be constructed through the Township of Clontarf, on the hill side, well below the surface of the ground, passing on the south side of Clontarf Castle demesne, parallel to, and at a distance of about 220 yards from, the Clontarf road to the shore end of the North Bull wall, where it would pass under the Clontarf road; thence to a point opposite Rabeny Park, it would be constructed on the sea side of the road: here it would enter the Howth road, and follow it to the eastern side of Howth Harbour. It would then be carried through the Hill of Howth by a tunnel about one mile in length, and terminate on its eastern side at a point about a quarter of a mile to the south of Puck's Rocks or the Nose of Howth, its total length being  $8\frac{1}{2}$  miles. At its termination the invert of the sewer would be 9 ft. above the Ordnance datum, or about 3 ft. below mean high water, so that the sewage would be delivered into the sea in a constant and continuous stream. The intercepting sewers are proposed to be constructed of brickwork and concrete. The outfall sewer is intended to be constructed of rubble masonry and brickwork in Portland cement, properly backed with concrete; it

could have a fall of 1 ft. 6 in. per mile. For this mode of dealing with the question, we claim the following advantages:—1st. That the works proposed are simple in their nature, the cost is easily estimated, and not likely to be exceeded; 2nd. That by this project the sewage would be carried to a spot distant about 10 miles from the centre of the city, and there be finally disposed of, being delivered in a constant stream into a deep and rapid tidal current, where it would be so diffused through an enormous mass of water as entirely to preclude the possibility of nuisance arising; 3rd. That at or near the point of discharge selected for the outfall there is no habitation, nor is there any beach or foreshore in which sewage could be deposited, the cliffs there being lofty and going down sheer into deep water. The Howth project is estimated to cost (for works) £300,000; but, taking it to include purchase of property, compensation, parliamentary, professional, and other expenses, at £350,000, and adding to it the cost of pumping capitalised at £72,000, it will give a total of £422,000. The population of the city and remaining townships being about 272,000, the cost per head will be about 31s., which will compare favourably with the amounts expended for similar undertakings elsewhere.

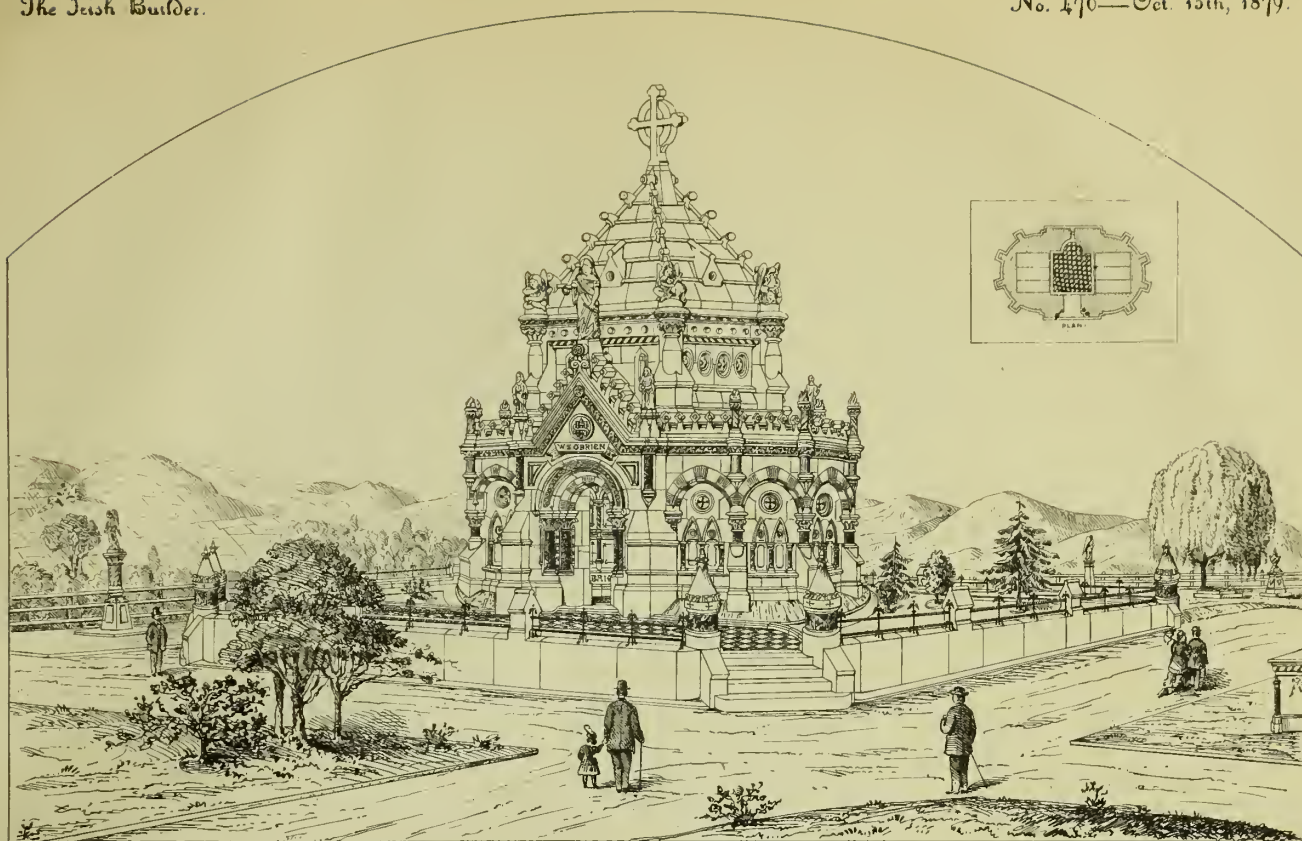
### SUGGESTIONS FOR YOUNG BUILDERS.

PART VI.

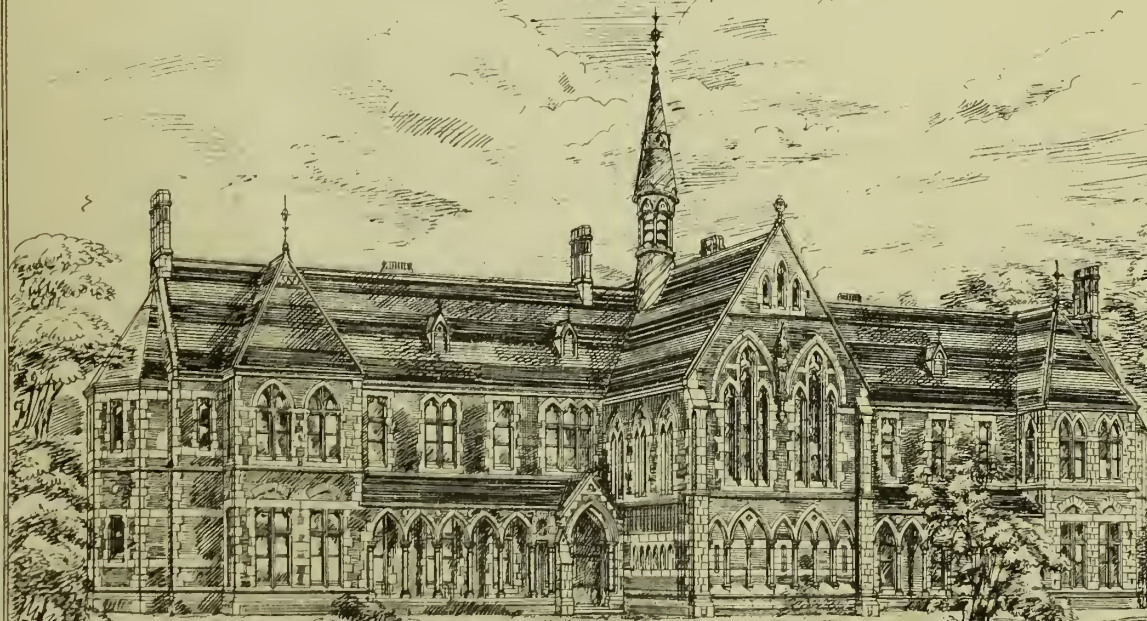
(Continued from page 297.)

WE will now attempt a description of our office practice in the use of colour, which will be found to have been most varied. Perhaps there is nothing in the draughtsman's art in which conventionality is more offensive. Usage has caused certain tints and colours to be used as signifying certain materials, and these have long since been "done to death." In the architects' offices in France the artists have shaken off the conventional trammels, and there the drawings are an assistance to, and keep pace with, the specifications. Here timber of whatever kind has one colour—yellow ochre; wrought iron, Prussian blue; cast iron, indigo or neutral tint, or Payne's grey; brass, gamboge; copper, light red, and so on. A better state of things should prevail, and the draughtsman endeavour to colour his plans so that a contractor can see what it was intended the work should be composed of. In building materials there is a great amount of varieties of colour, which, if properly availed of, make a drawing attractive; and it is the same trouble to use a true colour as a false, and there is no difficulty in procuring examples. To colour all wrought iron a bright blue, is simply absurd, although in some processes of manufacture the metal does assume a decidedly blue tint; under pressure,—for instance, clean forgings from a skilful hammer will be best represented with Varley's grey or lamp black and indigo, with a trace of madder brown. If the work is filed or turned, it can scarcely admit of any colouring beyond shading, which is best done with judicious and practised pen-lining. Such colours as dragon's blood and the madders come into play with good effect in gunmetal and copper. Lead is a difficult material to deal with, and zinc worse; but as the latter is seldom used, a line of bluish grey will generally answer to show its occurrence. Indian red and indigo will make a capital tint for lead and cast iron. Pines, red or yellow spruce, firs, and all that class of timber, can generally be dealt with by first applying a light wash of yellow ochre, Indian yellow, and a suspicion of carmine, the lines and knots being put in with a reed pen charged with dragon's blood, burnt sienna or umber, as the case may be; or whether the timber be Memel, Dantzic, or pitch pine. Stone, to be properly shown, is not at all difficult, neither is brickwork, as these materials have decided colours easily arrived at. When we were young, an apprentice's great aim was a box of paints to cost a guinea, and much rubbish went along with what was good to form such. Now a box of excellent colours may be had for one shilling! and moist colours in a tin or iron enamelled sketching-box for same price! But in addition to what is generally sold in cheap boxes, the student should have carmine,





THE O'BRIEN MEMORIAL, SAN FRANCISCO



PRESENTATION CONVENT, MALBOYNE, FOR HIS GRACE ARCHBISHOP GOOLD

SAM. PHYNES, M.R.I.A. ARCHT.  
30 SOUTH MALL, DUBLIN



THE LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



cobalt, ultramarine, gallstone, and the madders. All lakes should be avoided; they are weak and uncertain, and produce, excepting in combination with other colours, very unsatisfactory results. Carmine used scrupulously clean and evenly is the only colour for plans and sections, and, if time is not an object, it should be applied in two washes; scarlet lake is but a poor substitute, and should be avoided wherever carmine can be had.

The colouring-in of water on marine or river maps will look best in feint indigo, which should be mixed in a large saucer and allowed to stand for some time. The liquid should be drained off into a perfectly clean saucer, and used with a yellow sable pencil. The first line of colour—about an eighth of an inch broad—should be firmly laid in next to the land, and, when dry, the second over it, and about three-tenths in width, letting each succeeding line of colour dry, and repeating the operation about seven times with the same liquid all through, and slightly increasing each wash in its breadth. The result will be a beautiful wavy effect, much increased by a visual delusion, which will cause the outward edge of each wash to appear deeper in colour than the part adjoining or opposed to it.

In map boundaries, gamboge is an excellent colour, and contrasts well with carmine in the buildings, and the blackest and glossiest of ink in the writing, all of which should be done as far as possible after using the indiarubber. Gamboge had better be purchased at the chemist's in a lump, and of a bright and glossy fracture.

To those who require particularly bright colours, we recommend the following:—Procure them in impalpable powder in the artists' shops, and place a grain or whatever quantity you are likely to require on a clean saucer; on to this drop a single drop of liquid ammonia, which will gather the colour into a small button, on to which drop sufficient of gum arabic to cover it. When perfectly dry, and the ammonia has evaporated, and with it all acidity or greasiness, the colour is ready for use. For white, use oxide of zinc, which will never blacken.

Gold and silver for heraldry and illumination can now be readily had in shells and saucers, and at a much lower price than formerly; they are merely bronzes cleanly and carefully mixed with liquid gum. But should one be where shells nor saucers could not be had, a book of gold can always be got through the post for a few pence from Phillips, on Essex-quay. This leaf gold should be taken and ground with an ivory paper knife or folder in honey, until every portion is thoroughly mixed and levigated; then the mass thrown into a glass of soft water, well stirred up and left to subside, when the water should be poured off, and the residue again washed. By repeating this several times, and to the last washing adding a few drops of ammonia, a beautiful bronze will remain, which, mixed with gum arabic, will give for about eighteen pence the amount of from eight to ten gold shells. Very dilute honey water coloured with carmine makes a good gold size for either leaf gilding or dry bronzing, the writing, when breathed on, becoming sufficiently sticky to arrest and hold the gold; but all these preparations will require some practice. Gold inks are generally a disappointment, and the gum tragacanth with which they are prepared does not add to their value.

Herald painting generally requires body colours; these can be made by adding oxide of zinc or baryta; and as all the colours must be opposed to metals, and *vice versa*, care should be taken with some, which, like cadmium yellow and scarlet, will deliquesce in contact, to their own destruction and that of the vellum or paper on which they are used. Young and inexperienced persons are very apt to use colours as they find them, without any regard to their structure or the chemical affinities. Thus it is most common, both in water and oil, to use tints made of substances in chemical emity

—vermilion and red lead, for instance, to produce a bright scarlet, which they do for a short time, after which the product is a dirty reddish purple, resulting ultimately in a dingy black.

Stippling is an easy and effective way of colouring many things in the architect's or surveyor's office, such as granite and sandstone, concrete, and grass lands and demesnes: it is performed best with a new nail or tooth brush charged with colour, and made to splash or asperse by the hairs being rubbed with a scale or ivory paper-knife. The portions to be operated on should be cut out of tracing paper, which can be secured with weights, for which coins—pennies, shillings, &c.—will be found very convenient. In drawings of concrete, or where concrete occurs, stippling is most effective, and, if well done, adds much to the evidence of carefulness in the operator.

Demesne lands stippled in a green composed of lampblack, Indian yellow, and indigo, will have a good effect, especially if previously shaded with sepia, and burnt sienna to shew the undulations; and in granites and sandstones and gravel walks in large-scale drawings it is most valuable.

That *bete noir* of many a young and old hand, "Perspective," will next engage our attention. We have lately looked over many works on the subject, and can say that in not one did we find what was not most perplexing,—in not one did we find anything that would really aid the enquirer. Spon's "Architects', Builders', and Contractors' Pocket-Book," at page 115, contains really the only bit of practical information up to the present date published. The amount of fudge put forward in "visual rays," "aerial terminations," "terrestrial terminations," &c., however useful to perplex the student, will never enable him to enrich the office with a drawing creditable to himself or master. It is astonishing how men can contrive to wrap up such a beautifully simple process in such an envelope of perplexity! Some writers, not content with their efforts to nonplus by diagrams, would fain sell certain instruments with their books, all to convey what is shewn in Spon's little book (or at least the elements) in a space of 5½ in. by 2 in. We do not forget that excellent examples occur in Blackie's architectural works, but we object to the confusing number of lines.

(To be continued.)

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

WE would like to know if there be one old sedan chair in existence in Dublin or elsewhere in Ireland, preserved as a curiosity. In some of our museums and private collections there are some rare specimens of old musical instruments—harps, dulcimers, spinets, bagpipes, and harpsichords, the latter being the precursor of the modern piano. If we are ever to have a coach-building exhibition, in which old specimens of coaches, carriages, noddies, and the Irish jaunting car *par excellence* are to be exhibited, such an exposition will be incomplete unless the sedan chair finds a place among them. It would be easy, to be sure, to make a new sedan chair from the old drawings or pictures still existing; but a veritable sedan of the Dublin manufacture of the eighteenth century or the early years of the present, would indeed be a curiosity, and would much interest and amuse the youth of the present generation who have never beheld one. In Malton's "Views of Dublin," ranging from 1791 to 1799—the most picturesque series of views of the old city ever published, or probably ever will again be published,—the sedan chair and chairmen are introduced in several places, and these views are some of the best that can be referred to for showing the costumes and fashions of the times, and the public and private modes of conveyance, from the nobleman's coach, and the stage and mail coach, down to the common car, cart, and wagon then in use, including the hand-carried

sedan. The use of this covered vehicle and portable chair, designed for carrying one person, was confined mostly to the city, and there was a regular tariff of rates, according to distances, issued in connection with them, like those of other public conveyances. The sedans were principally availed of, in their decline, by aged gentlemen and ladies or invalids; but when in popular use in the last century they were utilised by young and old for going to dress balls, theatres, festivities, and particularly on rainy nights or in severe weather.

The last specimens of the sedan chairmen we remember had their station in Hume-street, a few yards up on the right as you enter from St. Stephen's-green, and at Palace-row, at the top of Rutland-square. The recess in the railings at Palace-row outside the old garden or gatehouse of the Rotunda Gardens, was the station of the sedan chairmen, and one chair and a couple of chairmen continued to exist here down till the first half of the present century, or perhaps a little later. Those of Hume-street and Palace-row appear to have died out within a short time of each other. In 1873, the author of "Unknown Dublin" wrote in these pages:—"Passing upwards towards the northern heights, we reach the sunnyside of old Garden-square. The old garden or gatehouse with its Tuscan columns is here within the railings still; and, bless me, but here too is the old recess where the ancient sedan chairmen sat waiting for a call. While the two-wheelers alone existed (*i.e.*, the jaunting car), there was hope still in the hearts of the last of the Mohicans who kept vigil in the silent shades of Yewmestreet and the northern slopes of Old Garden-square. The advent of the Dunleary Railway and the subsequent innovation of the four-wheel crawlers on our public streets gave the last finishing blow to the poor chairmen. Stent, supple, civil, and cleanly shaved and dressed members of society were the chairmen of old. They continued their peculiar costume till nearly the last in coats, hats, and knee breeches; and stoutly they resisted the ignoble use of trousers, which they considered were only designed to hide the spindleshanks of a degenerate generation who had no calves, and took to wearing socks also from pure laziness to tie their garters."

In Malton's view of Lord Charlemont's mansion in Palace-row, embracing the head of Rutland-square and its surroundings, the picture shows the old gate-lodge, the recess in the railings of the square, and the sedan chairs and chairmen, as described by the author of the above extract. As schoolboys we remember some of the chairmen bending under the weight of a sometimes very heavy fare—the loaded chair springing up and down on the poles, which were quivering in the hands of the chairmen, as one behind and the other before proceeded swiftly with their charge. Straps of leather were attached to the poles, so that the chairmen could take off a great portion of the weight from their hands by passing the straps over their shoulders. We doubt if there be one man alive at present in Dublin who acted as a sedan chairman; if there be, he must be nearly a centenarian, as the last specimen of the order we witnessed in Dublin was apparently between sixty and seventy years of age. Perhaps some octogenarian reader whose years are in advance of ours, and whose memory is more green, will supply a few more particulars anent the old sedan chairmen of Dublin.

In one of his short antiquarian sketches, the late George Petrie, nigh fifty years since, in a popular Dublin periodical, gave a description with an illustration, of an Irish mether or drinking-cup. The original was found in a bog in the County Armagh. The mether was of the usual form—round at the bottom, but quadrangular at the top, one shape gradually easing into the other. The mether had a handle on each of its four sides. The height was 7½ in., and its circumference 10½ in., its holding capacity being about three pints. Irish methers are sometimes of



greater size, and some have only two handles, though four is the usual number. The four handles, it is believed, were intended for the greater convenience of handing round the enp one to another. Petrie is of opinion that the use of the mether was universal at one time in Ireland; and, judging from the great depth at which they are often discovered, their antiquity must be extreme. The specimen illustrated by Petrie is described as of crab-tree wood—i.e., wild apple, a very tough or hard wood indeed, unseasoned or seasoned. About a year after the publication of Petrie's illustration a contributor in the same periodical—who we believe to have been Mr. William Allen, of Henry-street—published a description of an Irish mether in his possession, and gives two drawings of it. This specimen had an inscription on one side with a date, and some curious carvings or markings on other side. The height was 8½ in., the circumference round the top 8 in., and its contents when full exceeded two quarts; so in size, dimensions, and holding capacity, Mr. Allen's mether exceeded that described by Petrie. The material of which this mether was composed was also said to be crab-tree, "excavated so as to form a circle towards the bottom, while the upper part is perfectly square; on each side is a handle with hieroglyphic carvings not intelligible; and on one side this inscription—'Dermot Tully, 1590.'" The owner was of opinion that the inscription was of a much later date than the making of the mether, and we are inclined to agree with him, for several reasons. Dermot Tully was most probably the owner; but who was this Dermot particularly—a chieftain or person of some importance in his day? The nineteenth century owner, writes:—"Who this person was, I have not yet accurately ascertained; but on making inquiry of the officer who has charge of the Chancery Muniments relating to all the family estates, he most kindly and politely showed me that there once existed a family named Tully in the County Roscommon, of considerable estate and respectability, and who retained their property there until long after that period." There are families of the name of Tully still in Roscommon.

Methers were evidently used by the Irish for drinking wines and ales from—ales, beer, and mead being the drinks in universal use in Ireland before the somewhat modern introduction of whiskey. For centuries each family brewed their own ale and mead, public breweries being quite a modern institution. Mr. Allen in his descriptive essay in illustration of his mether gives some interesting memorabilia respecting the drinks formerly in use in this country, and he adds the following reflections:—"I never view the mether, believe me, without melancholy reflections. I look upon it as a surviving testimony of that lamentable change in the national beverage which I have above described; and, convinced that whiskey is that 'furniture' which debases the mind, the domestic habits and morals of a nation, I hope I may live to see it again prohibited, and to witness a foaming or sparkling mether on each man's table."

Mr. Allen did live to see whiskey not prohibited, but greatly lessened for a while by the rise of the temperance movement under Father Mathew; but we fear once again the consumption of whiskey is advancing. Whether it advances or not it is sufficient to know that the consumption of beer, ale, and porter, has advanced, and with the most ruinous results to the habits and morals of the people. We can have a nation of drunkards, who are beer drinkers, though they never touched whiskey, and as everyday results show there is little difference or choice left, as the evil is "six of one and half-a-dozen of the other."

In concluding, we give an anecdote respecting the use of the mether and the method of drinking therefrom, for in drinking from the Irish cup you must apply one of the corners and not the side to your mouth:—When Lord Townsend left the

vicerealty of Ireland he had two massive silver methers made in London, where they were regularly introduced at his dinner parties; the guests most usually applied the side of the vessel to the mouth, and seldom escaped with a dry neckcloth or doublet. Lord Townsend, however, after enjoying the mistake, usually called on his friend Colonel O'Reilly (afterwards Sir Hugh Nugent by the king's sign manual) to teach the drill and handle the mether in true Irish style.

At the risk of being charged with favoritism we must commend the sheet of illustrations *re* St. Douglough's in last issue of this journal, and the descriptive article accompanying. Having some remembrance of old St. Douglough's, and being Fingalian too, like the artist, we can corroborate in general his description. It is now thirty-four or thirty-five years since we first made a youthful pilgrimage to St. Douglough's, and other ruins twixt Swords and Sutton, beginning at the Round Tower at the former and ending at St. Fintan's and Kilbarrack churches near the latter. In the thirty-fourth number of the first volume of the *Dublin Penny Journal* there is a woodcut illustration of old St. Douglough's worthy of notice, with an accompanying description in the form of a letter, from the pen of Robert Armstrong, an humble but talented antiquary who resided at the time at Raheny. The woodcut published was, we believe, Petrie's, though Armstrong furnished a drawing of the church also, which was promised to appear at a later date, but it never appeared in that periodical. The late Rev. Caesar Otway, a writer of considerable literary ability and archaeological information, wrote several graphic sketches of objects of antiquarian note in the neighbourhood of Dublin. Among other churches and ruins on the north and south of the Liffey he notices St. Douglough's. We are almost tempted to quote in full his description of the old church and well, it is so lively a sketch, the word picture being made as picturesque to the reader as the old building itself is to the archaeological observer.

We will venture on a short extract:—"Whoever built it—and I am sure I know him not,—if he had not architectural taste, had certainly an eye for the picturesque; and he seemed desirous to present, in as small a compass as possible, all varieties of arch, angle, and window; and so he perforated his building with orifices, varying from the round abortive square hole and loophole to the most florid and ornate Gothic window. I repeat it, that the spire that some Dublin merchant caused to be erected of wood, and crusted over with *patent* slates, destroys the singular effect of the building; it is an imposition of a modern absurdity on an ancient extravaganza. It looks if it was a deranged old nun, who in the full habiliments of her order has put on a leghorn bonnet '*à la mode de Paris*.' What a fanciful monk, friar, or anchorite it was who contrived and constructed this building! what turns, contrivances, holes, passages, and staircases! what a conglomeration of arches and demi-arches, pointed, circular, contrasted, and elliptic, of which it is impossible to trace the centering, and in some instances the support!" &c. Here is a sentence from Otway's description of the holy well and the baths for baptising at old St. Douglough's:—"And certainly of all the holy wells in Ireland this bears the bell for original beauty of construction and regularity of arrangement, while everything that modern neglect and modern defilement could perpetrate short of absolute destruction is exhibited here."

But enough for the present. Otway's sketches in the environs of Dublin were originally published in the old *Church of Ireland Magazine* and other periodicals; and like his "Sketches in the North and South of Ireland," "Sketches in Erris and Tyravley," and his "Tour to Connaught" (mail coach wise), which latter originally appeared in the first volume of the *Dublin Penny Journal*, are racy, instructive, and amusing.

The district of Fingal, we would add, is still a mine of unexplored wealth for the local historian, architect, and archæologist, in its olden customs, dialect, and baronial and ecclesiastical architecture. H.

## CORRESPONDENCE.

### THE THOROUGH DRAINAGE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I would not think of troubling you, or intruding on the indulgence of yourself and readers the following remarks, did I not consider that every one should do his best to assist by suggestions the great scheme of thorough drainage. Personally I have often felt disgusted and sickened by the emanations from the Liffey; and, although believing that these did not affect the health of the inhabitants (judging from the men who for years swept the foreshore, and those employed in the machine dredges, ballast lighters, and harbour floats, of whose diseases I had for over quarter of a century ample cognisance—those being rheumatism and pleurisy, the former in the maximum, and cholera unknown), I should like much to see our beautiful city in the enjoyment of a limpid "Anna Liffey."

Our Corporation possesses many clever officers, and amongst the number an engineer who has long shewn great and hereditary capacity for his work. To interfere with such a public officer would be an impertinence, but there is no doubt that from suggestions he can cull what is of any value, and build up a design that will be all that could be desired. Any man may give his opinion as to the direction a public road, street, sewer way, or other work of utility may take, without presuming to advise as to how the executive works could be carried out; and it is only in some rare case of an especial branch of engineering—lighthouse optics, for instance—that this should be departed from, consequently I will not attempt any estimate as to expense, knowing such to be in much better hands.

My scheme or suggestion is to convey all the sewage of city and bay-bounding suburbs to the sea outside the bay, by gravitation assisted by flushing, rejecting all ideas of pumping and manure manufacturing, as most expensive and unlikely to ever prove remunerative.

The outlet I would propose for the south side of the city is the mouth of Loughlinstown River, to which I would carry a tunnel or sewer of suitable dimensions and material, commencing at some high point, say Sussex Parade, Upper Leeson-street (which has a surface altitude of 50 ft. or thereabouts over the sea) along to Donnybrook, being joined on its way at a suitable level by the intercepting sewer on the south side of the Liffey, the course of which I would propose to be by Forbes-street, Great Clarence-street, Grand Canal-street, and Beggar's Bush-road, being flushed so far by the Camac River at the King's Bridge and its mill-race at the corner of Watling-street; also the Puddle and Swan water, with water from the Dodder, if requisite, or the large disused mill-pond in Forty Acres or Baggotrath, regulating valves, &c., being placed in a station at the old Fair Green.

From Donnybrook the course is so obvious as to require little description—i.e., along the Stillorgan-road, by the Kill-o-the-Grange, and so on to the proposed discharging point into the sea at the mouth of Loughlinstown River, the distance from Leeson-street Bridge being 8½ miles. My proposal for north side would be to bring the intercepting sewer from Parkgate-street along the quays to Beresford-place, thence by Store-street, and Sheriff-street, to the east wall, past the vitriol works, and to Ballybough Bridge, where it could unite with my design communicated to the North Dublin Union in February, 1878, in a letter of which the following is a copy, and being flushed so far



by the Bradogue River, and water from a high level, say at Clarke's Bridge on Royal Canal:—

Clontarf, 5th February, 1878.

DEAR SIR,—Will you do me the favour of laying before the guardians of the North Dublin Union, when next assembled, certain designs for the main drainage of the districts comprehended in the general terms of Cabra, Glasnevin, Drumcondra, Clontarf, Dollymount, Raheny, and Baldoyle, which, I am of opinion, if adopted, would go far to remove opposition on the part of the Dublin Corporation, the Port and Docks Board, or the inhabitants of Clontarf. My proposition is as follows, viz.:—Firstly To construct a main or intercepting sewer of suitable capacity commencing at a convenient point in the town or village of Glasnevin, at a level of 100 ft. above low-water mark of spring tides, passing thence through townlands of Bank Farm and Drishoge to Milburne-lane, crossing mail coach road to Drumcondra and Santry, and taking the Drumcondra-road sewer; thence along public road by Drumcondra, Richmond, Fairview, and so on to and past Clontarf and Dollymount to a point in Heron-town or Bettyville, and through the townlands of Foxlands, to the main road to Howth to a point in the townland of Burrow, there crossing the isthmus, and entering the Rabbit Warren to discharge into the sea at "Cush Strand."

Secondly. To construct a main sewer from a point in the village or townland of Cabra along public road through townland of Grangezorman, crossing the Phibsborough-road at the old turnpike which is about 100 ft. at surface level above the sea, along Circular-road to Lower Dorset-street to Ballybough Bridge, and thence under River Tolka to sewer No. 1 at or opposite the constabulary barrack at Fairview.

By these two schemes all pollution of the River Tolka would be avoided, and all interference with Clontarf Strand or tidal water way of the River Liffey. . . .

Thomas Atkinson, Esq.,  
North Dublin Union.

Knowing nothing of any design for discharging the sewage at "Nose of Howth" till I had read the morning papers of 3rd inst., I addressed the following on 1st inst. to the Secretary of the Royal Sanitary Commission:—

Clontarf, 1st October, 1879.

SIR,—I have the honour, with much respect, to ask the attention of the Royal Commissioners to suggestions having special reference to the thorough drainage of the City of Dublin. All schemes that I have heard of propose to empty or terminate somewhere within the bay or harbour, and I have not heard of any proposal as to other *debouchement*, excepting one I made to the North Dublin Union in a letter in February, 1878, as to the preserving the River Tolka from pollution, a copy of which I beg to enclose. It will be seen that I propose discharging the main drain or sewer outside the bay at the Burrow of Howth, about two miles beyond the "North Bull." This is my suggestion for the north side of the city.

For the south and its suburbs I would propose a point of discharge somewhere near to the mouth of Loughlinstown River at Ballybrack, in parish of Killybeg. The distance of these points from the city, and consequent length of main sewer may argue against their adoption; but the route to each is through populous and wealthy districts that could afford to pay for the immense benefit derivable from such a course, and in each case there would be facilities for constructing reservoirs for flushing, a desideratum in such a comparatively level direction as must necessarily be taken in any method that may be adopted.

JOHN S. SLOANE, M. Inst. C.E.I.,  
Late Engineer to Commissioners of Irish Lights.

To this I had a courteous reply from the secretary, thanking me for the "valuable suggestions" contained in my letter, which he would "immediately lay before her Majesty's Commissioners."

The foregoing is my contribution to the mass of evidence that will no doubt be laid before the Royal Commissioners. I have studiously avoided any reference to the propositions of others, and shall in common with my fellow-citizens hail with pleasure any design that will ensure the termination of a too long-delayed great public and sanitary matter.—Yours, &c.,

JOHN SWAN SLOANE, Architect, &c.  
Clontarf, 5th October, 1879.

## OUR CORPORATION.

BY A MEMBER.

"All crowd, who foremost shall be damned to fame."  
—POPE'S "Horace."  
"On their own merits modest men are dumb."  
—G. COLEMAN, the younger.

In an elegant house we meet and debate,  
And talk upon matters of City and State,  
And pass resolutions on things small and great,  
At the side of Cork-hill in the corner.

Oh! where is the citizen councillor, tall,  
Small or large, or large or small,  
But glories to get a place in "the Hall;"  
Undismayed by the breath of the scorner?

If houses will fall, why what is it to us?  
If the Liffey will smell, where's the use of a fuss?  
Let us tamely the merits of either discuss,  
In our beautiful house in the corner.

We should everthing do with a dignified air,  
And always stand up when addressing the chair,  
And practise the manners of Parliament there,  
In our beautiful house in the corner.

Since eighteen hundred and forty and one,  
What a world of good we have been and done,  
And the thanks of our fellows all but won,  
By the side of Cork-hill in the corner.

People will ever be found to scoff,  
And hint that some things seem a long way off.  
Tho' we failed in the trees we will now plant Gough,  
On the old Mall at Britain-street corner.

Who says that our usefulness is "most rare?"  
Sure erst we got rid of old Dannybrook fair.  
Such ingratitude's monstrous I will declare,  
When I get on my legs in the corner.  
They forget we brought the Vartty here,  
With a smell like paste blacking, the colour of beer;  
A boon the citizen's hearts to cheer,  
In fountains at every corner!

And though with the bridges we've played old Nick,  
Sure that merely shows that at nothing we'll stick;  
While our jolly Lord Mayor is a regular brick,  
A proper squared stone in the corner.

The thorough drainage is all but begun,  
The Liffey henceforth shall in purity run,  
And our corporate labours are nearly done,  
That we worked at so well in the corner.

That wonderful volume produced by Thom  
Is crowded with all the work we have done;  
In "the Annals" at page eighteen hundred and one,  
Just up at the top in the corner.

Oh! long may wave, though of dingy hue,  
Our corporate banner supposed to be blue,  
Emblematic of "we" who are loyal and true,  
In the Mansion House garden's corner.

Then oh! may we never guilty be,  
"Of the pride that apes humility,"  
That sin, so likes the devil he,  
Below in his warm corner.

But stand up like men and say our say;  
Let the people know, at home or away,  
That here we are always determined to stay,  
In our elegant house at the corner.

Rus-in-Urbe, 9th Oct., 1879.

Σ.

## NOTES OF WORKS.

A new mansion for Major-General Dobbs is being erected at Greystones, County Wicklow, from plans by Mr. James Price, C.E., architect. Mr. G. F. Tyrrell, builder.

At same place a mansion is nearly completed for William Pidgeon, Esq., of Athlone. Mr. J. H. Bridgford, architect; Mr. G. F. Tyrrell, builder.

At Drumree, County Meath, a new glebe house is being erected from plans by Mr. J. F. Fuller, architect. Same builder.

The Chapel of the Magdalen Asylum, Lower Leeson-street, was re-opened on Sunday last, after painting and decoration in an effective style, by Messrs. Gibson and Son, Mary-street.

Under the superintendence of Mr. T. N. Deane, architect, the parish church, Roscrea, County Tipperary, is undergoing extensive alterations and improvements. Mr. G. F. Tyrrell, contractor.

At Cardiff, South Wales, two new slaughter houses have been erected, at a cost of £6,000 each. Mechanical appliances have been provided for the slaughtering of 600 animals daily.

New schools have been opened at Malahide, Co. Dublin. They comprise two rooms divided by folding doors, and which can be used as one large room when public lectures or concerts are to be held. The large room is 31 ft. by 20 ft., and the smaller room 20 ft. by 20 ft., the whole space being covered by a handsome open timber roof stained and varnished, with cross framed diagonals at the intersection. The new premises are entered by a vestibule formed through old building from the public road, while the remainder of the latter is converted into a dwelling for the master and his family, consisting of living room and kitchen on ground floor and three bedrooms on upper floor. The work has been creditably executed by Mr. Nicholas Brady, of Dublin, who is well-known in Malahide, having built the new glebe house and the additions to the church a few years since. The schools have been designed by Mr. James Bell, architect, F.R.I.A.I., county surveyor, who has given his plans and superintendence gratuitously. The cost will be under £600.

The new Histological Laboratory of the University of Dublin, now in course of erection, is situated at the east end of the College Park, adjacent to the medical school, and to the anatomical museum. It will be a long building, facing north and south. It will consist, beside the basement, of two storeys. On the first will be the laboratory, with rooms for the professor and for the attendant. The laboratory will be a long room, lighted from the north by several large windows. There will be three rows of tables along the room, giving accommodation to seventy students, and allowing to each 3 ft. in space. The students, when working, will face the light, an arrangement which is far preferable to that by which they have the light at the side. On the second storey there will be the lecture theatre, which will seat upwards of a hundred students, and in which the lectures on physiology will be delivered. Adjacent to the theatre there will be a large room in which apparatus will be kept, and in which preparations can be made for lectures. In addition to the rooms described, the building will contain lavatories and water-closets. This laboratory will supply a want greatly felt since the introduction of practical histology into the curriculum for the degree in medicine. Hitherto the demonstrations have been given in a small ill-lighted room, capable of accommodating at most twenty persons, and which was accessible to the students only during the short term that the demonstrations lasted.

## A NARROW-GAUGE RAILWAY TO BALTINGLASS.

Mr. William Lewis, C.E., an engineer who is well known in connection with narrow-gauge lines in the north of Ireland, has submitted a plan for one from the South Wall, Dublin, to the town of Baltinglass, Co. Wicklow, at an estimated cost of £207,000. The length would be about 39 miles.

The narrow-gauge system has many merits to recommend it. It is cheap in construction, and can be worked for half the expense of a broad-gauge railway. It is admirably adapted to a hilly country, whilst merchandise of every description, as well as cattle, can be carried upon it. The carriages would be 7 ft. in width. In the matter of bringing granite from the famous quarries about Blessington, a vast saving could be effected. A much larger trade in this stone could be secured if a reduced tariff prevailed. The leading gentry and land-holders of the western portion of the country are favourable to the scheme, and will aid in forming a company. We hope soon to report progress.

MORE PAUPERS' LUXURIES.—At a recent meeting of the guardians of the South Dublin Union, Mr. Shackleton called attention to the fact that the number of chickens used in the house for the half year ending March, 1879, was 455, while the number for the previous year was only 100. The master was directed to furnish a report on the subject, and also on the increase of the brandy used.



# THE ROYAL COMMISSION ON THE SANITARY STATE OF DUBLIN.

In our issue of the 1st we gave some brief particulars of the inquiry that opened on the 30th ult. in the City Hall, before Messrs. Rawlinson, C.B., C.E., and Dr. F.X. MacCabe, the commissioners appointed to inquire into the state of the sewerage and drainage of the city. The report read by the Town Clerk, giving a history of what had been done in the matter of drainage during the past twenty years, was an important one, and elicited the commendation of the chief commissioner. A portion of Mr. Neville's evidence on the first day was also important, but we shall not stop here to point out some mistakes or errors in respect to his evidence *re* house drainage.

In concluding the proceedings of the day the chairman observed he had no hesitation in saying there was not a single residence of a citizen in Dublin, or of a single nobleman in Ireland, the drains and sewers of which had not been improved or changed within the last dozen years, which were not in a bad, dangerous, unwholesome condition. Marlborough House, the residence of the Prince of Wales, two years since cost £6,000 in the removal of cess-pools and drains from under the basement to the outside. It was only six months ago since the drainage of Spencer House, the residence of the late Lord Lieutenant of Ireland, in James's-street, had been completed. The basement, on being examined, was found to contain a mass of corrupt and cess-pool matter. It was all removed and the residence perfectly drained at a large cost. He mentioned these facts to call the attention of people who live under such circumstances to the danger they were running. If they valued money more than comfort and health, they were living in a condition of life which was not worth twelve months' purchase. In Dublin they might have perfect sewerage and drainage; but if persons of wealth who lived in these large houses of old standing had not their places examined and properly drained they were living under circumstances of great discomfort and of danger to themselves or some members of their family.

On Wednesday the 1st inst., Mr. John McEvoy stated that when it was found the tenders for the main drainage scheme of 1871 were so much in excess of the estimates, a meeting of citizens was held in the Mansion House, and a committee appointed to carry out its views. Sir Arthur Guinness became chairman of the committee, which drew up a memorial, which was presented in December, 1874, to the Lord Lieutenant, by whom it was forwarded to the Corporation. The Town Clerk had referred to communications between the Government and the Corporation in July, 1870, which resulted in the obtaining of the loan of £300,000. At that time the Corporation was ready for carrying out the main drainage scheme, and, as they themselves expressed it, "all they wanted to enable them at once to commence the works, and rapidly complete them," was the granting of this loan, which they obtained. The Town Clerk, in his evidence, was silent respecting the circumstances under which the scheme of 1871 was introduced, and its subsequent modifications. The scheme itself would be found described in a report handed in by Mr. Neville relating to 1869. Sir Joseph Bazalgette proposed to convey the whole sewerage of the city and townships of Rathmines, Pembroke, Clontarf, and other places, by gravitation, to the North Bull, and to be there discharged an hour or two after high tide on the ebb, the cost to be defrayed by a uniform rate over the districts drained. The Board of Trade reported against it, as likely to lead to obstruction in navigation. In consequence of that objection, the scheme was modified to provide for the retention of the solid sewage in tanks, from whence it was to be removed from time to time by mechanical means, in a manner not perfectly understood. The Town Clerk had further referred to an injunction sought and obtained

in 1875. This injunction was obtained because the Corporation did not comply with the Towns Improvement Act, and submit the plans and scheme to the ratepayers for their sanction.

Mr. Parke Neville, City Engineer, stated that Pembroke and Rathmines were now altogether out of the scheme. Clontarf was included, and it was also necessary that Drumcondra, the newly constituted township, should be drained in conjunction with the main scheme. The Corporation would require a contribution from these townships for their drainage with the city. Witness gave details of the different sewers in existence and of those proposed to be constructed.

The chairman entirely approved of the circular sewers adopted by Mr. Neville in preference to the egg-shaped sewers. The use of concrete was a great advantage. It only recently came into extensive use, and it was very economical.

Mr. Neville stated that the proposed northern high level intercepting sewer would commence at Arbour-hill, and, joining the low level sewer at Sackville-street, go on to the North Bull. The southern high level sewer would commence at Mount-street, to Grattan-street, and under the Liffey west of Carlisle Bridge. The northern low level sewer would commence at King's Bridge, and be carried along the northern line of quays. The southern low level sewer would commence at Kilmainham, and be carried on to Victoria-quay. The sewers would not interfere with the quay walls. A good deal of pumping would be required in carrying out the works. About 200 tons of sewage went into the Liffey every day, and its purification and the improvement of the dwellings of the people should go hand in hand.

The chairman said he could say that the tenement houses in Dublin were as bad as places possibly could be in which human beings were supposed to reside. At the same time he might tell them, that there might not be despair; he had seen nothing in Dublin worse than what he had seen in England. He had seen things as bad in what was called rich England as he had seen in Dublin, and he had been inspecting since 1848. There was a hope that improvement would follow exposure, and he hoped the sores that would be exposed by this investigation would be healed.

Mr. Boyle, Secretary to Public Health Committee, examined. There were 9,760 tenement houses in the city. Practically they are all drained, though many of them imperfectly. Special attention having been directed to tenement houses beyond all others, more care has been given to their sanitary improvements, particularly house drainage, and there are at present very few of them that have not effective drainage. The sanitary authorities had proposed to undertake a house-to-house inspection of the whole city, with a view of ascertaining the exact state of things, and had provided £400 in their estimates so far back as last December. They intended to entrust this very important duty to persons with such a knowledge of structural arrangements as would enable them to detect any imperfection and report it.

On Thursday Dr. Grimshaw, the Registrar-General for Ireland, stated in his evidence in reply to Dr. MacCabe that before he had become Registrar-General he devoted considerable attention to sanitary matters in Dublin. The population of the city, according to the census of 1871, was 314,666, and of the portion within the municipal boundaries 246,326.

The witness was examined at considerable length by the chairman and Dr. MacCabe in respect to the state of the Liffey and its effect on the health of the people, and his conclusions were that the effect was inappreciable. In reply to Dr. MacCabe as to the effect of the system of house drainage on the health of Dublin, Dr. Grimshaw said that the system of house drainage was exceedingly bad, and that applied to all classes of houses. There was no system adopted by the Corpo-

ration for the removal of house refuse. He had no doubt the removal of house refuse at short intervals would be of the greatest benefit to the city. After some evidence as to hospital accommodation, Dr. Grimshaw, in reply to Mr. Furlong as to the high rate of mortality, said that the ordinary sanitary affairs are a very serious matter in considering the health of the city. The streets are not sufficiently scavenged. Filth has been accumulated from various places and allowed to remain in the city. The people who clean ashpits keep manure yards, and sell the manure to farmers; and he was sorry to say that the Corporation have the manure yards.

The further examination of Mr. James Boyle was then resumed. The evidence related to the domestic scavenging, and several questions bearing upon were put by the Commissioners.

After further questions the chairman said that if the Corporation were about to establish a cleansing staff, and undertake the cleansing, it could only be done fairly and legitimately by charging one common general rate, and distributing that over the entire property, and cleansing and scavenging as much as might be necessary, whether it was twenty times or one time.

On Friday Mr. Boyle was further examined. Dr. Cameron, Superintending Medical Officer of Health, was then examined at considerable length. He said:—The river has an injurious effect on the health of the city generally. The Liffey is an open sewer or ditch, and the decomposing matter in the bed of the river is occasionally quite bare, and in hot weather it is most offensive. The bad effects on the banks of the river are lessened, as the noxious gases are largely oxidised owing to the open space about the river. The mortality is rather lower on the banks of the river than in other places of the city; but in stating this, the superior class of houses along the banks of the river should be taken into consideration. It is not fair to compare the mortality of this class of houses with houses in the purlieus of Church-street, Plunket-street, and such places, where the lowest class of the people reside. People of the highest respectability reside on the banks of the river, and, taking the houses along the river, they are altogether of a superior class; so the comparison is not fair, as the conditions are not similar. Cities built on estuaries of rivers are generally unhealthy, and Dublin is naturally unhealthily situated. Many of the basements of the houses are below low water mark, and this acts injuriously on the health of the city. It would be possible if a place was reclaimed at the North Wall to make it a receptacle for refuse without being dangerous, if allowed to remain the shortest possible space of time. It is a question worthy of consideration. I find that the liquid matter which passes through sewers in Dublin has no more odour than water. In reply to Dr. MacCabe witness said a great many waste products flowed into the Liffey which might be utilised. The Vartry is a perfectly pure and wholesome water; the canals furnished very impure water; city pump water contains great quantities of plaster of Paris, and it was not wholesome to drink such water.

In reply to Dr. MacCabe as to his opinion of tenement houses, Dr. Cameron regretted he could not express the same favourable opinion as he had given relative to the water supply. He said a large portion of them were in a deplorable state. As to suggesting a remedy, the witness could, if the matter of expense was not an element. The efforts made to establish tenements for the working classes have been, so far as the lowest class of the community is concerned, a failure. They have been built for a class of persons who give the sanitary authority little trouble. They are persons paying weekly rents of from 3s. 6d. to 6s.; the persons I speak of pay weekly rents of from 8d. to 2s. 6d., and with the exception of some private persons who have built little cottages, no efforts have been made on their behalf. The soil of Dublin is very damp, and the consequent diseases of



of the respiratory organs was the chief cause of the high death-rate. Paving would on that account be a most important sanitary measure.

In reply to questions respecting diseased meat Dr. Cameron stated that a vast quantity of it was taken into the market and sold. He was the first to organise an inspection over meat, and it had frequently been stated that in Dublin the most perfect system was carried out with reference to the inspection of meat.

The chairman said it was quite possible to make Dublin as healthy a city as any on the face of the earth, if only what sanitary science might do for the site were carried out.

To Mr. Furlong—I am sorry to say that cattle dying from pleuro-pneumonia are sold and eaten for human food. The boards of guardians permit of their officers selling it, but they were opposed in so doing on every possible occasion. Witness believed with Dr. Angus Smith that chemical works have no effect upon the health of the people; and he did not think those about Dublin were more than an annoyance. Regarding the poorer classes he said the inner clothing and their bedding were simply awful, and there ought to be cheap baths and wash-houses established. The Mendicity Institution he regarded as a failure; the prices were too high; and it was held in such regard that respectable people would not go there. Witness himself wished to state that domestic scavenging, if adopted, should be carried out by the Corporation, and the filth removed as often as possible.

Alderman MacDermott, Chairman of the Artisans' Dwellings Committee of the Corporation, detailed the action of the committee. He said the Artisans' Dwellings Act was passed in 1875, and action was taken on it by the Corporation in 1876. Out of twelve unhealthy areas in the city which the Medical Officer of Health reported two were selected. The Coombe was chosen as the first place to put the act into operation. A confirmation order was obtained from the Local Government Board in May, 1877. A loan of £20,000 was obtained in February, 1878. Mr. Fitzgerald, the valuator of the Corporation, gave £11,134 as his valuation of the premises required. The Government valuator afterwards awarded £14,420. In a very short time they expected to commence operations.

Mr. Richard Hassard, C.E., was next examined, and gave a detail of his scheme for the main drainage of the city, which we give elsewhere.

On Tuesday the 7th, the inquiry was resumed. A discussion in the commencement of the proceedings ensued in regard to Mr. Neville's scheme. Mr. Hassard, C.E., wished to see the plans of Mr. Neville's scheme without the prices, and Mr. Palles, C.E., agreed with Mr. Hassard, that the plans asked for should be shown.

Mr. Rawlinson—As the engineering member of the Commission, I must take the responsibility of replying to you. I think you should put some trust in my knowledge and independence. I must shun any sort of apparent rivalry. I don't feel myself justified in subjecting Mr. Neville to the sort of cross-examination that you wish to submit him to. You make take it for granted that I shall make myself thoroughly acquainted with Mr. Neville's figures and facts before I report, but I wish to avoid any undue forcing out of evidence. Mr. Neville is here, and if he chooses to tender the evidence you ask for, I certainly shall not object to take it.

Mr. Hassard said the reason he asked for Mr. Neville's plans was that Mr. Neville, reporting on the subject in 1877—since which time there had been no material change in the prices of materials and labour—said that, in order to carry out a really efficient system of main drainage for the City of Dublin, a sum of £450,000 should be provided.

Mr. Rawlinson—If I choose to say ditto to that in my report, the Corporation can afterwards please themselves; but I can tell you that I shall not say ditto to it unless I shall have been convinced from my personal

examination and knowledge that such an estimate is necessary. When I say "I" of course I mean as the member of the Commission on whom the burden of the engineering question must fall.

Mr. Palles, C.E., detailed the scheme for metropolitan drainage proposed by Mr. Cotton, Mr. Price, and himself, in 1874. The plan he now submitted was a modification of what was then put forward. They proposed to utilise the outfall sewer at present in course of construction by the Rathmines and Pembroke Commissioners, and which discharged at the White Bank on the north side of the South Wall of the Liffey, using that sewer for the discharge of the whole of the sewage of the southern district of the city and Kilmainham township. It was proposed that the sewage should be discharged only during the four hours when the ebb tide ran strongest. The sewage of the north side of city they would deliver into a concrete reservoir to be constructed on the east side of the new docks, from which it would be discharged into the deep water-channel of the river during three hours of the strongest ebb.

Mr. James Price, C.E., was examined in support of the scheme with which he was associated with Mr. Palles, and stated one advantage of it was that the mixing of the sewage with the salt water of the river would take place in still water, whereas in the case of an outfall below Poolbeg the waves caused by south-easterly winds would throw the sewage back. He believed the effect of the mixture of salt water was to render the sewage harmless.

The chairman said there was strong evidence the other way—namely, that the product of a mixture of sewage with salt water was more injurious than the result of a similar amount of sewage mixed with fresh water. The present depth of the river channel was due to dredging, and the probability was that if that operation were discontinued it would fill up again. Therefore the Port and Docks Board would look with jealousy upon any scheme that would affect the depth of the river channel.

Mr. Price did not think that the state of the Liffey was the main cause of the bad sanitary state of the city. The main causes of it were the unsanitary condition of the houses and the condition of the soil underneath them. In illustration of this he would mention the case of a friend of his whose family were always ill in the house in which they resided. The gentleman, who was an engineer, purchased the house, and on examination of the foundations found three feet of the foulest earth saturated with sewage underneath them. He put down fresh soil and concrete over it, and afterwards none of his family were ill. The remedy would be to remove the tainted soil, and put concrete between the new soil and the foundations.

Mr. Rawlinson—Even the purest soil ought not to be left under a basement without concrete over it.

Mr. Price—The new building regulations of the Corporation provide that that shall be so.

Mr. W. J. Doherty, C.E., contractor for the re-building of Carlisle Bridge and other works under the Port and Docks Board, was next examined. He had for a long time taken a great interest in the main drainage question and possessed some knowledge of it, having on two occasions sent in tenders. In 1873 he tendered for £775,000, which was £100,500 under the next lowest tender; and again in 1874 for £480,000. It was now admitted that the most economical method was to discharge the sewage into the sea. The utilisation of sewage was now an admittedly exploded theory. Dublin was naturally divided into two portions by the River Liffey, and he therefore proposed that there should be two outfalls—one on the north side, and the other on the south side. The northern sewer would commence at the junction of the Conyngham-road with Parkgate-street, and would be near the concrete wall, east of the new tidal dock. The length of

the sewer would be 6,500 yards. The southern sewer would commence at King's Bridge, and, passing by Beggar's Bush and Irishtown Church, would discharge at a point nearly opposite the northern outfall. The length of this sewer was 7,000 yards. He believed that a great saving could be effected by using concrete and Portland cement instead of bricks. He felt sure that by his plan of sewers the drainage would not be driven back when the tide rose. The outlet of his sewers would be 8 ft. or 9 ft. above low water at a spring tide. There would be a fall of 4 ft. from the beginning of the sewer to its outfall. The flood water would be prevented from running up the sewer and driving the sewage back by iron gates at the outlet. He would make his sewers self-containing during the period of high tide. His estimate for his scheme was £250,000, and he would undertake to carry it out himself for that figure to-morrow, if he was allowed.

Mr. Hassard said if he were to use concrete instead of brick he could reduce his estimate.

Mr. Rawlinson said he would like to impress on all the engineers that no magnificent or grand plan was wanted. The question was what would be adequate to meet the requirements at the least cost. He did not care about a grand scheme unless it produced grander results than a plain one.

Mr. Doherty said the cost of materials was now very much lower than in 1873, when the estimated cost of the drainage scheme was £775,000. Iron, for instance, was then £12 a ton, now it was £5.

Mr. Rawlinson said the city had had a great escape from a great increase of taxation to carry out that very expensive plan.

Mr. Shannon, solicitor, asked Mr. Doherty if he was aware that there was a number of citizens in Dublin who believed that the utilisation of sewage was anything but an exploded theory? Did he know that outside Edinburgh there were meadows the value of which had been increased from from 2s. 6d. an acre to £40, by the utilisation of sewage for their irrigation? Mr. Doherty said he was aware of the meadows at Edinburgh.

The chairman said that there were a number of circumstances to be taken into consideration in regard to the utilisation of sewage, and the general opinion of engineers at present was that in cases of proximity to the sea, it was the best plan to discharge the sewage into the sea. It was very bad political economy to spend thirty shillings to gain a pound.

Mr. Charles Burdett, Associate of the Sanitary Institute of Great Britain, was proposed to be examined.

The Chairman said there was no necessity for examining an English engineer on Irish affairs.

On Wednesday, the sixth day, Mr. Frederick W. Pim, on the part of the Sanitary Association, concurred as to the bad state of the Liffey, the tenement houses, and the defective public scavenging.

Alderman Harris gave evidence as to the financial position of the Corporation, and made some brief allusions to the "Jerry" houses which have been erected in Dublin, and their "scamped" drainage. He also spoke of a number of streets without sewers. The chairman remarked that the Corporation of Liverpool had expended several hundreds of thousands of pounds in buying up and getting rid of "Jerry" houses. Dr. James Moore, F.R.C.S.I., allowed there were some improvements in the sanitary condition of the city since 1873, but was of opinion that the drainage of even the best of the private houses in the city was defective. He also alluded to the defective scavenging, and the existence of the sweating system in tenement houses.

On Friday, the seventh day, very important evidence was tendered. Professor Henry Hennessy handed the Commissioners a paper dealing with the questions of the climate of Dublin and its sanitary condition. In his opinion the health of the city depended on three things, namely—the supply of fresh



air, the proper removal from the city of liquid matter, and the proper removal of solid matter. Professor Hennessy read his paper, which recommended that the worst parts of Dublin should be cut through by a few broad streets, an efficient system for the removal of refuse, and that tramways, railways and canals should be made available for the purpose. Mr. John Dillon, C.E., read a valuable paper dealing with the sanitary condition of the city. He considered the state of the Liffey a small factor in the high death-rate, but that the condition of the streets, tenement houses, and house drains was a more important factor in the high death-rate, as it was the highest in the localities where these matters were neglected. He was of opinion that the dirty habits and drunkenness of the poor was chiefly due to overcrowding, and that it was one of the largest factors in the high death-rate. The Commissioners jointly expressed their sense of the high value of Mr. Dillon's paper.

Mr. John P. Griffith, Assistant Engineer of the Port and Docks Board, was examined at considerable length by the chairman as to the nature and present condition of the river and port generally, the set of the tides, and other engineering details. He said if Mr. Hassard's scheme, having an outfall at Howth, was carried out, nothing would come back into the Port of Dublin, but the sewage would be carried past Howth Harbour, and those in charge of its interests would have to look to them. The outfalls which had been proposed on the northern side of the river would seriously hamper the Port and Docks Board in the execution of contemplated works, as such outfalls would cast more or less sewage on Clontarf shore. The Port and Docks Board would oppose the reclamation of land on the North Bull, because it would lessen the area wanted for the deposition of sand washed in from the sea, and tend to raise the bar, now almost a thing of the past, but might reform if existing conditions were altered.

Mr. J. A. Stephens, *ex-officio* guardian, North Dublin Union, said there were many houses where there could be no connecting sewers, as there were no mains. He thought the officers of the Corporation did their duty as well as they could, but they were underpaid, and had too many masters. The work, in his opinion, was better done when the city was under Commissioners. Some of the streets were in a disgraceful state, owing to the filth thrown into them. Mr. Bagot, Secretary to the Chamber of Commerce, believed that much of the disease was caused by the offensive gases from the house drains, the want of proper traps at the mouths of sewers, and that the law was exceedingly bad in respect to tenement houses.

We hope to continue in our next issue.

### THE SOCIAL SCIENCE CONGRESS AT MANCHESTER.

THE twenty-third annual congress of the National Association for the Promotion of Social Science opened at Manchester on the 1st inst. in the new Town Hall, under the presidency of the Right Rev. Dr. Fraser, bishop of the diocese. The inaugural address was an excellent one. We give a few short passages:—He would invite them to consider with him some of the problems involved in the social condition of great cities. Within the radius of five miles of Manchester there must be aggregated a population of probably 750,000 persons, of whom about 370,000 would be in Manchester, 170,000 or 180,000 in Salford, and the rest in suburban townships with local self-government. The distribution of population in these great industrial centres was peculiar, and seemed to follow a kind of law, and was an important element to be borne in mind when they were considering the social condition of the people. They would hardly find one of their wealthiest men now living, as formerly was the case, within two miles of his place of business or

of the Exchange. The shopkeeper had migrated into the suburban townships, and the centre of the city at night was a mass of unoccupied tenements. The working class and the poor still clustered thickly together in some of the murkiest and dismallest quarters of the town, with nobody, perhaps, living among them above their own social level, except the doctor and the clergyman. The two main questions which suggested themselves in connection with the state of things were education and health, and on both these he proposed to speak. After giving some statistics on the subject of education, the Bishop went on to deal with the question of public health. Good health in the towns might be said to depend upon four primary conditions—a good water supply, good drainage, good diet, well-constructed and wholesome houses. The chief difficulty in dealing with these great and important questions affecting the public health arose from the fact that municipal bodies and local boards rarely attacked the evil until it had become intolerable, and when they did attack it they found it encumbered with so many vested interests or acquired rights that it was almost impossible to deal with it effectually, except at a cost which was enough to frighten them from dealing with it at all. After referring to the improvements made of recent years in the sanitary condition of Manchester, the Bishop remarked that the city was not paradise nor even Arcadia; but he suspected people died even in Arcadia, and if they died in Manchester it was not for want of that reasonable care being taken which might enable them to live. On the subject of cemeteries he remarked that before long we should have to face the problem "how to bury our dead out of sight" more practically and more seriously than we had hitherto done. Cemeteries were becoming not only a difficulty, an expense, and an inconvenience, but also a danger. How to encourage habits of thrift and providence, and at the same time to suppress the tendency to pauperism and mendicancy, were two of the most important and difficult social problems presented by populations aggregated in large masses, and there were no questions in which a more careful discrimination was needed to arrive at a true estimate of the case. That there was a thriftless section in every class of society, from the highest to the lowest, there could be no doubt, and it was, probably, also true that all members of all classes had, in the last few years, been living at a more extravagant rate than prudence could justify. At the same time there were many encouraging symptoms on the other side. He was glad to observe in a very recent return that even in this, as he was afraid we must call it, calamitous year the withdrawals from the savings banks had not exceeded the deposits by a larger sum than about £100,000. The working class had many other opportunities, and chose many others—not all of them very wise or felicitous—of investing their money than with either the Post Office or the trustees' savings banks. After some remarks on the amusements of the people, and quoting a letter from the medical officer of the Manchester Corporation on the condition of the town and the dwellings of the people, his lordship concluded by asking could some principles of social science, if such a science could be constructed, be impressed on men's minds without an appeal to religious sanction and religious motives, and he frankly confessed he did not think they could. The utilitarian philosophy was notoriously deficient in motive power, and the great social doctrines of Christianity were all based on the idea of brotherhood.

In the Art Department, Mr Horsfall read a paper on "By What Means could the Inhabitants of Large Towns be induced to buy Samples of Good Art." He said photographs, photo-engravings, and chromo-lithographs of good pictures are now so cheap that well-paid workpeople can afford to buy several such copies every year. The crowds of workpeople round printsellers' windows show

that good pictures have some interest for workpeople. Why is it that as a rule only worthless engravings and coloured prints are found in their houses? The chief reasons probably are that few workpeople know that some copies of good pictures are cheap, and that they don't know enough about the subjects of the pictures they see to care very deeply for them. He suggested that in every town a number of people conversant with art should select such good cheap copies of pictures as they think can be interesting to workpeople by explanation, and that they have printed on slips of paper, one of which shall be sold with each copy, a statement of their reasons for choosing it, a brief criticism of its merits and defects, an explanation of the incident or thing which it represents, and of the connection existing between what it represents and incidents or things known to most workpeople, the price of the copy and of a simple frame for it. If print-sellers would not sell the chosen copies and the printed slips, a collection could be placed in the local picture gallery, or arrangements be made for their being sold by the local agent of the Society for the Diffusion of Useful Knowledge.

On Friday the Hon. Lyulph Stanley, President of the Education Section, delivered an address on the subject, confining himself to the consideration of the secondary and higher education.

In the Jurisprudence Department the special question of the day was, "What is the Mode in which Charitable Endowments can be dealt with when their objects have become changed in character, or unsuited to the present wants or usages of good Society." Sir Arthur Hobhouse, K.C.S.I., who introduced the subject, urged that the charity commissioners should be clothed with much wider powers, that they should not only be able to take the initiative in all cases, whatever the value of the endowment might be, but should be able to declare new trusts whenever the original ones were pernicious or substantially useless. As long as we had no adequate local authorities the initiative ought to rest with a central one, and then he thought there should be an appeal in cases where the value was sufficient to justify so expensive a proceeding.

In the discussion which followed, Dr. John Watts said the question they had to consider in connection with endowments was, did the world belong to the living or to the dead? If it belonged to the living what had the dead to do with it? It seemed to him that any endowments which were left for any purpose whatever ought to be subjected to revision at least every fifty years. If not, we threw away our experience, and suffered ourselves to be tied by the wills of people who knew nothing of the circumstances of the times or wants of the people.

In the Art Department an interesting discussion took place, "On the Moral and Artistic Aspects of the Stage," Mr. Herman Vezin, the actor, having contributed a paper on the subject, which was read by Mr. W. Grace of Manchester.

The Rev. F. C. Woodhouse, Rector of St. Mary's, Hulme, Manchester, followed with a paper on the same subject.

In the Health Department there was a discussion on the question of intemperance.

In the Economy and Trade Section the question of our railway system was under discussion, Mr. E. J. Watherston (London) giving an elaborate review of the history and position of our railways, contending they ought to be national and not private property. In half a century we had revolutionised our social, commercial, and international relations. Projected amid sneers, contempt, and opposition, their construction was left to private enterprise. Later, their importance being appreciated in other countries, such as Belgium, public opinion decided that they ought to be national property. The first trunk line from London—that to Birmingham—cost a struggle of three years in Parliament, and then to make it five years instead of one, and four millions



instead of one and a-half, in order to avoid intermediate towns, which were afterwards glad to get their little branches. Nevertheless the line soon proved a commercial success, and the tide turned. Having taken the place of the Queen's highway, railways ought to be public property, managed for the benefit and in the interest of the nation. Instead of 1,000 directors and scores of managers, with allowances equal to those of Cabinet Ministers, there ought to be a central government, with the service arranged to meet the utmost public convenience. There need be few trains running at more than thirty miles an hour. Goods trains might often run on separate lines.

Among the subjects in the other sections on this day were the treatment of habitual criminal defects, of public elementary schools, which could be amended by the Kindergarten system, domestic water supply, and the reform of the land laws.

On Monday, 6th ult. Lord Reay, President of the Economy and Trade Department, delivered the opening address on Land Tenure, entering into a review of the French land system, and the British and other advocated systems. His Lordship concluded a long address by expressing his belief that the agricultural depression has nothing whatever to do with our system of land tenure, but it should lead us to inquire as to what are its weak points, and in laying them bare may prove the way to a state of things which will be advantageous to the landlords and to the tenants.

The Jurisprudence Section was the best attended on this day, where Dr. Waddilove and Dr. Edgar advocated the assimilation of the marriage laws of England. The papers gave rise to a long and occasionally animated discussion.

In the Economy and Trade Section there was a large attendance, including the Bishops of Manchester and Salford, Mr. Jacob Bright, M.P., and others. Mr. John Slagg read a paper on the renewal and extension of our commercial treaties and the chief obstacles to the general adoption of Free Trade. A long discussion ensued.

In the Art Section a paper was read by Mr. J. Comyns Carron Art Administration, in which, while confessing that the Royal Academy had exercised a powerful influence over the progress of English art, he complained that it had been guided by a narrow conception of the duties it had undertaken, and that some of its most distinguished members had been obliged to seek abroad the technical training needed to fit them for their profession.

## HOME AND FOREIGN NOTES.

The "Madeline" wing of the Adelaide Hospital, Peter-street, was opened yesterday by the Marquis of Abercorn. The Messrs. Beckett, South King-street, were the builders. Cost £14,000.

The erection of the new Law Courts, London, is being pushed forward with great activity, and substantial progress will be made before winter sets in. The block on the western side of the great quadrangle, containing judges' rooms and chief clerks' chambers, is in process of being roofed in, and the outer walls of several of the courts on the eastern side of the central hall are ready to receive the roof. The groined stone ceiling of the central hall is already commenced, and throughout the building signs of rapid advance are everywhere apparent.

**LAKE DWELLINGS.**—The discovery of the existence of man in the pleistocene caves of Cappagh, County Waterford, has led Mr. R. J. Ussher to look elsewhere for the records of pre-historic man, and his researches have been rewarded by the discovery of a crannog, or old lake-dwelling, in the submarine peat of Ardmore, in the same county. Prior to Mr. Ussher's examination the remains were regarded as those of ancient salmon weirs, or similar structures, and his discovery consequently shows the desirableness of examining accumulations of a like kind elsewhere.

**THE DUBLIN SILK AND POPLIN WEAVERS.**—On the 10th inst the Duchess of Marlborough received a deputation at the Castle, from the operative silk and poplin weavers of the city, to confer with them as to the best course to effect a revival of the trade. Her Grace said that it principally

lay in the hands of the weavers to cause a revival, but that she would use her personal influence to supplement their efforts. Her Grace added that if the trade was to be successfully restored their energies should be devoted to procuring new designs to compete with foreign goods.

**SANITARY HOUSE CONSTRUCTION.**—In view of the domestic dangers to health arising from imperfect workmanship by plumbers, and the use of improper (so-called) "sanitary appliances," the Council of the National Health Society announce that they propose to organise a series of lectures and demonstrations on elementary sanitary science to working plumbers. At the close of each series of lectures, money prizes will be awarded to those who gave the best evidence of having profited by the teaching. The National Health Society have reason to believe that, not only would the lectures be very numerous attended, but that the matter would become one of general discussion in the workshops; and they consider that such a movement can hardly fail to be of great public benefit.

**THE BRUCE STATUE.**—The statue erected to the memory of Robert Bruce in front of the new Town Hall at Lochmaben has been unveiled. It is erected on the site of the old cross, in the centre of the market-square. It is hewn out of freestone from Fairholm Quarries, Hawick, and stands on a pedestal 10 ft. high, of Dalbeattie granite, and bears the following inscription:—"Robert Bruce, born July 12, 1274." The figure itself is 8 ft. in height, and the king is represented in his fighting gear, wearing a crown and mantle of royalty. He is supposed to be presiding over the great convention of the estates of Scotland held at Arbroath, in 1320. He clasps with his left hand his sheathed broadsword; and in the right, which is resting on the thigh, he grasps that famous appeal to the Pope, of which the original is understood to be still preserved in the Register House, Edinburgh. The sculptor was Mr. John Hutchison, R.S.A., Edinburgh.

**STRAW WOOD.**—A new use for straw in the preparation of an artificial wood is reported from Illinois, United States. Several sheets of ordinary straw board, such as is produced in a paper-mill, are taken, according to the thickness of the desired board, and are passed through a chemical solution, which softens the fibre and saturates it. They are then rolled, dried, and hardened, and emerge from the machine as a compact block, hard, impervious to water, and capable of taking any polish, such as of walnut-wood or mahogany. In fact, on sawing it, it is said to be difficult to distinguish it from real wood. Another application of the same material is reported from San Francisco. Straw pulp is made by pressure in a machine into the form of barrels and kegs, which with their wooden hoops only weigh about 16 lb. The cost of a barrel or a pail is exactly the price of wooden ones, and one man only is required to attend to three machines, which can turn out 750 barrels per day of 10 hours.

**ARCHÆOLOGICAL "FINDS" AT DONNYBROOK.**—While some workmen in the employment of Messrs. Wardrop and Sons were excavating in a field adjoining Seaview-terrace, Donnybrook, for the purpose of laying the foundation of some buildings now in progress, they came across a large quantity of human skeletons, most of them in a perfect state of preservation. Besides these skeletons were found a two-edged sword and two daggers thickly corroded with rust, but of very antiquated workmanship. Some coins were also discovered, probably of copper, but with the date and impressions wholly obliterated. Since the discovery of the remains fully eight cart-loads of bones have been removed for interment, and where the men are still excavating the ground is thickly interspersed with human remains. The field is the property of the Earl of Pembroke. [The south side of Dublin as well as the north has been the scene of some fierce conflicts in past times, and there has been some fighting from the fields of Baginbally to Rathmines and Rathfarnham, and further afield.]

**A NEW POSTAGE STAMP.**—An old firm in London which has been manufacturing postage stamps for the Post-office since the institution of the penny post by the late Sir Rowland Hill, and which has always adopted the plan of steel engraving, which gives security against counterfeit stamps, will lose the contract next Christmas, when it will be given to an eminent firm of stationers in London. In January of next year a postage stamp of entirely new design will be issued, one out of many designs of her Majesty having been selected after much consideration by the Post-office authorities. The new stamp will not be steel engraved, but printed on the letterpress system, which, although not so proof against forgeries, satisfies, it is stated, the requirements of the Post-office Department. The change in the contract which has lasted for so many

years has been made, it is alleged, through economical motives, as the substitution of letterpress for steel engraving will effect a considerable saving. The old firm, which has so long held the contract for the manufacture, will be obliged to discharge about 200 hands by reason of its loss.

**THE LEANING TOWERS.**—The motto of a tower should be, "I aspire, but I am strong;" a leaning tower seems to suggest, "I am weak because I aspire." Who, putting aside the marvel of the thing, can help regretting that the noble campanile of Pisa did not find a firmer foundation? and this is even more true of the towers of Bologna, whose lines are simpler and severer. They stand side by side on the Mercato di Mezzo, in the heart of the town. The older, called the Torre degli Asinelli, built in the beginning of the twelfth century, is full 90 yards high, and leans a little more than a yard from the vertical; the other, the Torre Garisenda built in rivalry a few years later, leans over more than 8 ft., and thus was left incomplete at a height of 138 ft. Various explanations have been given of these leaning towers, some believing that they were purposely so built. Goethe's reason, quoted by Mr. Hare, is, that as in old times every important family possessed a tower, this, when vertical, became a familiar and common object; accordingly "a leaning tower was built; architect and owner attained their object; the mass of upright towers are just glanced at, and all hurry on to examine the leaning one." Others have attributed the inclination to an earthquake. To me it appears more probable that the sole cause is a defective foundation; for at Pisa the subsidence evidently commenced early, and after the third stage the builders tried to remedy the evil. La Garisenda, also, is said to have become more out of the perpendicular during the last hundred years.—*Picturesque Europe.*

## TO CORRESPONDENTS.

**DE GOMME'S SURVEY.**—Respecting Sir Bernard De Gomme's "Survey of Dublin Harbour, 1673," noticed in our opening article in last issue, we are assured that the map that was exhibited at a meeting in the Royal Irish Academy in 1861, reproducing De Gomme's scheme was made for the late Mr. Charles Halliday, by Mr. J. S. Sloane, C.E., whose name is pretty well known to our readers. The "Observations, Explanatory, &c.," that accompanied the map were printed by Mr. Halliday for private circulation.

**"THINGS NOT GENERALLY KNOWN."**—Owing to a mistake of the compositor the words "toll-house" in the third paragraph of the above-named article in last issue was substituted instead of *tall house* (i.e. high house) the house in question being a lofty one, and occupying a somewhat elevated position.

**THE SANITARY COMMISSION.**—Although the Royal Commission has sat for several days and registered most useful and important evidence, yet up to the time of our writing there are sundry matters of a serious nature having a bearing on the sanitary condition of the city which have not been touched, and others which have been but barely noticed. Possibly some of these matters will form the subject of a paper that may reach the hands of the Commissioners before they complete their report.

**M. D.**—It would be impossible for us to find room for one-sixth of the matter which formed the subject of inquiry.

**C. E. (City).**—The paper is too long to give *in extenso*, but its chief points will be noticed in due time.

**J. H. (Plumber).**—Though you deal to some extent in lead, you have not taken the lead in question, as other workmen in the building branches have written letters in relation to the want. Give us a short letter with a few facts and practical suggestions, and we will give it publicity.

**CYZEN.**—The Corporation at present has its hands full; wait a little.

**A SUBURBAN BUILDER.**—We would be sorry to put down all suburban builders as "scampers," though there are some "scabby sheep" among the fold. Architects might indeed assist in "weeding them out," but it requires some courage to "bell the cat."

**\*\*** We are obliged through pressure on space to hold over several papers and communications.

**RECEIVED.**—R. D. S.—E. T. C.—P. P.—Archæologist—G. M. (London)—Architect (do.)—H. F.—J. B. C.

## NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.*

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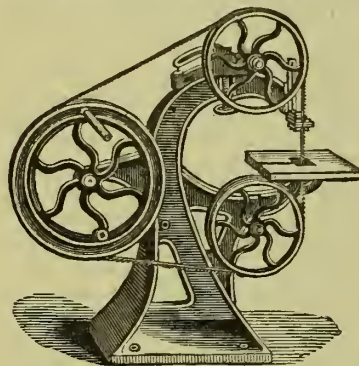
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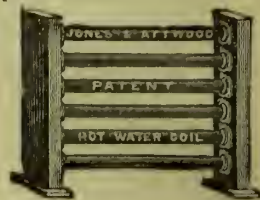
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THE IRISH BUILDER.

VOL. XXI.—No. 477.

THE LIFFEY AND DUBLIN HARBOUR—PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.

THIRD PAPER.

**I**LLUSION was made in our last paper to the condition of the Liffey towards the close of the last century, to the state of the old Custom House and the bridges over the river, and to the project of a new Custom House lower down the river, which project met with great opposition at the time. The most violent opponents to the building of the new Custom House (the present one) were the numerous parties interested in property on the western part of the city and along the quays. The Government, greatly influenced and urged on by members of the Beresford family, decided at last on the new building. The various arguments for and against the removal of the old Custom House at Essex Bridge are detailed by the Commissioners of his Majesty's Revenue in a report to the Lord Lieutenant, bearing date the 9th of September, 1773. This report is reproduced in Mr. Gilbert's "History of Dublin," and is worthy of perusal. The plans which accompanied this report for the intended new building were drawn by Christopher Myers, a Dublin architect of some note at the time. The commissioners also proposed "that a plan should be had from Sir William Chambers or some other eminent architect, from whose abilities we may expect the design of an elegant but simple building, in which convenience, solidity, and proper economy shall be united." This report is signed with the names of John Burke, J. Beresford, Thomas Allen, and Robert Clements.

The Corporation at the time was opposed to the building of a new Custom House, and a petition against the removal of the old building was presented to Parliament by that body, as also by the merchants, brewers, and manufacturers of the city. The Corporation anticipated alarming consequences from the new project, and conceived it their duty, as they said, to offer every expedient in their power to prevent the work from being undertaken. They were willing to accommodate the public with such part of the ground belonging to the city as might be wanted to enlarge the existing Custom House or erect a new one on the same site; but to building one lower down the river they were vehemently opposed. Their memorial is a document worthy of reproduction for the light it affords in connection with our subject. It runs:—"That the petitioners were convinced that the building of a new Custom House to the east of Anglesea-street would prove in its consequences highly injurious to the trade and manufactures of the city, to the property of the petitioners, and to that of the greater part of their fellow citizens. That the situation of the present Custom House (1773) is more central and convenient to men in trade than any other. That the removal of it to a more distant part would lay the petitioners under the necessity of abandoning that care which they had hitherto taken of their business at the Custom House, and committing it to brokers and other substitutes at great expense, or of changing their residences to the neighbourhood of the new Custom House, and deserting their present dwellings and concerns, in the purchase or improvement of which a considerable part of their property has been expended. That the petitioners have at a great expense nearly completed the building of an Exchange [now City Hall] on the ground granted to them by Parliament; that the situation was most central and convenient for the purpose; and the petitioners have executed the work in a manner ornamental to the city and becoming the epithet Royal, with which his Majesty has been graciously pleased to honour it; but should the project of removing the Custom House succeed, all the advantages of trade and conveniences proposed by the petitioners to themselves and to the public, from the use of this building, will in a short time be frustrated. That the arguments used by the advocates for the removal of the Custom House appear to the petitioners weak and ill founded. That the objection to the present one on account of room has been effectually obviated by the generous and spirited offer of the Corporation of this city to give up their contiguous estate for the enlargement of it. That the temporary interests of the present tenants of the old houses on that ground may be purchased, and the bed of the river between the lower end of the Custom House quay and Temple Slip may be cleared at an expense small in comparison with that which the projected alterations lower down must be attended with—a consideration which the petitioners cannot doubt will have due weight with the representatives of the people."

A number of the Corporation may possibly have been quite sincere in their opposition as matters appeared to them at the time, but it is most likely that personal interests influenced the principal opponents. The reasons they gave in their petition are similar to those put forward in the present day by

men opposed to public improvements when those improvements interfere with their trade or interests, or when large claims for compensation are intended to be presented. The report of the commissioners carried the most weight and influence, and certainly the arguments they advanced showed the drawbacks which the city experienced and was likely to experience as time advanced if the Liffey remained unimproved by erecting new bridges to accommodate the extension of the capital, and for other reasons connected with the trade of the port.

After a considerable amount of agitation and excitement, the vexed question was settled by resolution in the House of Commons in March, 1774, the result of a long investigation, declaring that the situation of then existing Custom House was inconvenient to the trade of Dublin and prejudicial to the Revenue, and that it would be expedient to build a new Custom House eastward of Bachelor's-lane. The decision of course was loudly protested against, and created much angry feeling, which was not even allayed in 1781, when the new Custom House was commenced. Indeed it was feared that at the laying of the first stone there would be an organised resistance. After all is considered, no one can doubt but it was a wise resolve to commence the new building, as it was the beginning of many subsequent improvements in the city and along the line of the river. When it is recollected that vessels of large burden or sharp build could not take ground or come up to the old Custom House to discharge, and how a large expenditure (not to speak of the delay and inconvenience) was incurred in unloading freight into lighters and "gab-bards," it must be allowed there were cogent reasons in favour of the improvement of the river. Extending from Essex Bridge obliquely to Liffey-street there was a mass of rock still existing, but a lower depth, known as "Standfast Dick." On this rock many vessels in the last century grounded. The extent of the old Custom House quay, too, was so limited that no more than three or four vessels of from 50 to 170 tons burden could lie alongside it at the same time. The proposal to double the old Custom House quay by adding to it the ground, then covered with houses, lying between the Custom House and Temple Bar Slip, was found impracticable, as it would necessitate the removal of the large bed of rock passing under the river, on which, at high tide, there was not more than 5 ft. of water.

On the 16th of July, 1781, James Gandon, the architect, broke ground, and the first stone of the new and present Custom House was laid somewhat stealthily, and without any ceremony, on the 8th of the following month, and ten years passed before the building was completed. Several public improvements in the meantime were projected and moved apace,—public buildings, designed by the same architect and others, and improvements connected with the river, and for the benefit of the trade and commerce of Dublin.

The following extract from the *Dublin Chronicle* of the 19th of May, 1787, six years after the building of the new Custom House had commenced, and while the work was proceeding towards completion, will show the views that were still entertained by some as to the probable effect of erecting the building lower down the river:—"The effect apprehended from erecting a new Custom House



out of town (that of altering the site of the city) begins to appear. It is reported with confidence that all the ground on the south side of the Liffey from the Marine School [on Sir John Rogerson's-quay] to the Point [of Ringsend], has been taken for the purpose of immediate building on. By this means a junction will be nearly effected with the town of Ringsend, and the inevitable consequence must be that the west end of the town will be depopulated. The fluctuation of property caused by this must be very great." The tide of fashion certainly began to move eastward as well as trade, but to the Act of Union that followed in 1800 is to be attributed, and not to city, Liffey, and harbour improvements, not a few of the ills that Dublin subsequently experienced.

In 1791 the Irish Parliament granted £45,000 towards the construction of docks on the north and south of the river. East of the Custom House a small wet dock was opened in 1796, and east of these new docks were commenced some years later (St. George's Dock) which was opened by George the IV. during his visit in 1821, in connection with which John Rennie, the engineer, was employed. What was called the Grand Basin and Docks at Ringsend, on the south side, were opened in 1796, by the Earl of Camden, with great ceremonial. These docks were for a while esteemed the finest and most extensive in Great Britain, but, although they afforded considerable accommodation, yet, for various purposes, they soon proved inconvenient, and others were required with bonding stores in more immediate connection with the Custom House, which, as shown, were afterwards supplied. In Malton's work 1791-9, there are the following suggestions and remarks in connection with our subject:—"The place at present, for the lodgment of the stores of the Government on Sir John Rogerson's Quay, is certainly ineligible on many accounts, and very confined; a more desirable situation could easily be obtained at the lower end of the North Wall, the termination of which would be a very advisable place for a fort; a noble terrace might be raised fronting the Bay, whereon a battery of cannon might be planted. Government storehouses might be raised immediately contiguous, which constructed after a picturesque manner, would add beauty to utility; a few lofty towers of castle structure, particularly a large round tower like the round tower of Windsor Castle would have a fine effect from the bay. The appearance of Ringsend might be made to contribute to the forming the whole or a piece, from the lighthouse to the entrance of the river. The low grounds on either side of the river are most desirably convenient for storehouses, manufactories, &c., which, with attention, might be formed to unite the grand with the useful." What would James Malton say to-day were he alive, and witness all the changes that have taken place on the North Wall. Malton always had an eye for the picturesque, but though an artist, and a clever one, he throws out in his work several useful suggestions—many very practical and appropriate when he wrote.

Here is another extract from Malton anent the docks and canals in course of construction at the date of his writing. If he anticipates too much for their use, let it be remembered he lived at a period when there were no steam ships or railways to disturb his vision:—"The docks and canals, that present them-

selves on entering the river, are not the last objects of this metropolis worthy of notice. The Grand Canal Harbour on the south side is a stupendous undertaking, and there is every hope and likelihood of it answering in utility the vastness of its construction. The Custom House Dock also is a noble receptacle for shipping, and cannot fail proving highly important to the commerce of the city. The good consequences that must result from the canals that now completely surround the three parts of Dublin, will be of very general influence; not only internal productions of the country, both of agriculture and manufacture, will find a ready passage to the capital, and thence out of the kingdom, but also foreign commodities will be chiefly diffused over the country, create abundance, and excite and give energy to industry, which alone can ensure a lasting plenty."

The sailing directions or instructions, given in a Dublin gazetteer, for navigating the harbour towards the end of the last century, stand out in curious contrast with those at present observed by captains and pilots. We reproduce them to show the precautions that were necessary on account of the shoals, the shallowness of the water, and other impediments to navigation in the harbour which then existed:—

This harbour is large and affords good anchorage; ships may be sheltered in it from S. to the N.E. by E. winds. The best anchorage is from 5 to 7 fathoms water on the S. side when the light house on Howth bears N.E. or N.E.  $\frac{1}{2}$  E. Ships of large draft of water coming from the S. that can't get through *Bray-Swath*, must be careful to avoid the N. ground, and the bank called *Kish*; if low water, on the former there is not more than 10 ft.; and the greatest depth between the N. end and the *Kish* does not exceed 15 ft. at low water; the S. end of *Kish* is the shoalest; on it there is from 6 to 7 ft. at low water; it bears E.S.E.  $\frac{1}{2}$  E. from the high land of Dalkey, S.E. from the new light house or casoon at the end of the piles [Poolbeg], S.S.E. from the light house of Howth [the hill beacon], E.N.E. from the big *Sugar Loaf hill*, and S.W. from Lambay. The height of the Shoal is about two cable lengths, and its breadth from E. to W. is about 20 fathoms; this bank stretches the bay N. by E. When you sail so far Northward as to bring the end of the piles W.N.W. you have about  $2\frac{1}{2}$  fathoms at low water; then Ireland's Eye will be quite open with Howth; on the S. end of the *Kish* you will have then open and shut. When you intend sailing without it you must keep then a large ship's length open; it is not safe to come nearer to it than 7 fathoms either within or without; as soon as you are over this bank, you will find 14 fathoms water between it and the bay. On some parts between the N. end of this bank (which is broad), and the S. you'll find 4 fathoms at low water. The navigation is difficult from the bay to Poolbeg; there are two channels, one called the S. and the other the N., the former is best with the winds for E. by N. to W.N.W. and has the deepest water, viz., about 7 or 8 ft. at low water. Sailing in by this channel with an Easterly swell, or little wind, you must be careful that the tide of flood does not draw you to the Westward of the piles [South Wall]. The best of the channel is about  $\frac{1}{2}$  cable's length from the S. buoy, fixt at the S. edge of the bank that separates the two channels. When the wind is between the N. and E., most ships come over the bar, or N. channel; there is a buoy fixt there on the S. end of the narrow spit, joining to the end of *N. Bull*; which you are to keep on the starboard hand coming on; the best of this channel is a short cable's length to the Southward of the buoy, which lies about E.  $\frac{1}{2}$  S. from the piles end at about  $\frac{1}{2}$  of a mile. On the starboard hand coming into *Poolbeg* there is another buoy fixt on the edge of the *N. Bull*, abreast the E. end of the piles. In *Poolbeg* you have 9 to 13 ft. water; the deepest water is at the E. end, a little above the light-house. All ships in *Poolbeg*, moor athwart, with the Northmost anchor near the edge of the *Bull* as the deepest water is to the N. side. Ships that can endure the ground, run up as far as they have water, and moor on the S. side of the channel.

A map is given in Malton's work, entitled

"A Correct Survey of the Bay of Dublin, 1795," and this map is somewhat interesting and useful. There was of course no great North Wall extending from the western end of the Bull Island or North Bull to the North Spit buoy, for the sheltering or improvement of the harbour. The great South Wall, however, is marked down on this with the Pigeon House, and the lighthouse at its end. The then contour of the North and South Bull sands are distinctly shown, and we have also "the Bar." The seaboard villages and towns are marked down from Ringsend to Dalkey, along the bay on the south, and from Ballybough Bridge to Howth on the north. The Lighthouse at Howth was not the present "Bailey," but the beacon or light previously erected on one of the highest points of the Hill of Howth. In this map Kingstown is marked "Dunlary," the letter e being left out. The old Charter School at Clontarf is marked, Clontarf with its church, "the sheds of Clontarf" "Ratheny" with old church, and Kilbarrack with old church, St. Fenton's Church, Howth Castle, &c. The sea-side places on the south side now spelt one word are marked on the map thus, Buttor's Town, Black Rock, New Town, Monks' Town. The map includes Baldoyle, Portmarnock, and the "Sand Hills." Rossbeg sand bank (not marked on later maps) near the present "Bailey," and within the bay is shown, and on the opposite side of the Hill Ireland's Eye with the old ruins of St. Nessan. The old building is plainly figured, though the name is not marked. Attached to this map of the bay is a small plan of the "East Part of Dublin," figured for reference, the figures denoting the following principal places,—Castle and Garden, St. Stephen's Green, College Park, Merrion Square, Rutland Square, Mountjoy Square, Essex Bridge, Carlisle Bridge, Custom House, and Marine School. This map of the Bay and Harbour of Dublin in 1795, based on the Nautical Survey of Bernard Scale and William Richards, taken in the year 1765, is worthy of note, and should be scanned in connection with the maps illustrating the Harbour at different periods in Mr. Griffith's paper "On the Improvement of the Bar," &c.

In our next paper we may be able to speak particularly of the harbour improvements and schemes of the present century. Archaeologically speaking, however, there is much of interest to the citizens and local historians connected with the old harbour during the last two centuries and upwards. We may blend some more of these events by way of contrast with the more recent engineering ones, as we proceed.

#### THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A COUNCIL meeting was held at 212 Great Brunswick-street on Monday, the 20th ult., Mr. J. J. M'Curdy, president, in the chair. Present—Messrs. J. H. Owen, M.A.; Sandham Symes, George C. Henderson, J. Rawson Carroll, Thomas Drew, R.H.A.; William Mitchell, William Stirling. Mr. James H. Owen, who had acted as secretary since the resignation of Mr. Henderson, stated to the council his inability, from other engagements, to continue to discharge the duties of the office. The difficulty of finding a willing and efficient successor was, after discussion, finally disposed of by Mr. Henderson's volunteering to re-assume, at considerable personal inconvenience, the office of secretary, and take up actively the



conduct of correspondence and other matters before the council which have been standing over in the absence for some months of any duly constituted secretary.

Mr. McCurdy and Mr. Drew reported that they had, as a deputation from the Institute, waited on the Chief Secretary for Ireland (Mr. James Lowther), on the 15th October, being accompanied by Mr. Maurice Brooks, M.P., who had kindly identified himself with the object of their visit. They had brought once more before the Chief Secretary the question of the proposed Museum of Science and Art for Dublin, informing him that they had on a previous occasion had an interview with his predecessor, Sir Michael Hicks Beach, on the subject, and that they were in possession of the strong personal view of that gentleman that, had he continued in office, he would be unfavourably disposed to the designing of the building being entrusted to officials of either the Board of Works or those in any way connected with the Department of Science and Art, South Kensington; he was of opinion that the work should be a matter of open competition to architects generally. Mr. Lowther was understood to hold a similar opinion, and courteously undertook to report the representations made to the Lord President of the Council. On the second subject brought before the Chief Secretary's notice, viz., the withdrawal of such public buildings as post-offices, custom-houses, and other public buildings from the general profession, begun under the late Government, and more recently prisons under the Prisons Act, no definite expression of opinion was extracted from Mr. Lowther.

The position of the "Building Bye-laws" question was next under discussion, it being stated by the president that the Bye-laws prepared by the Corporation were by advertisement open for inspection at the City Hall, and would, in the absence of objections, be open for confirmation by the Local Government Board, after the 14th November next and become law. Some strong feeling was expressed on the manner in which these Bye-laws had been prepared by some unknown and apparently incompetent authority, and at the manner in which successive draughts—first of a Building Act, and subsequently of successive sets of Bye-laws—prepared at the sacrifice of much time and trouble by competent members of the Institute, were ignored and shelved by the officials of the Corporation. The secretary received instructions to take action in the matter, and an adjourned meeting of the council was ordered for the 27th, to receive a report of a sub-committee, and lay its views before the Local Government Board. It was suggested also that H. M. Board of Works was largely affected, as are the architects and builders of Dublin, by the proposed measure, and equally ignored as to their views by the Corporation, should take action before the Local Government Board, and assist in preventing any crude or ill-digested measure becoming law, and at the same time assist in passing a thoroughly efficient, practical, and sensible one.

The case of professional practice, in which an English architect dealing with an Irish builder had insisted on deducting a certain amount from the payment of a first instalment, on the alleged grounds of "quantities supplied," referred to the council, was ordered for final consideration on the 27th Oct., when the opinion of council asked for would be given with all the documents relating to it before them.

The question of the proposed buildings for the Royal Agricultural Society, whether as open to the profession generally, or whether being designed, as reported, in the General Valuation Office, or by the Board of Public Works, was under discussion.

The "postal packet" question was considered; it was decided to promote memorials from persons interested to H. M. Post-Master General, praying that the limit of 24 in. by 12 in. be again reverted to, as being more considerably adapted to the sizes of double elephant and imperial papers,

either on rolls or flat mounts, than the present embarrassing limit of 18 in. by 9 in.

The treasurer announced the discharge of all liabilities, and that under the economical arrangements as to expenditure now established, some addition out of income had been made to the small vested fund of the Institute.

A report to a general meeting, in accordance with the amended Bye-laws, was ordered to be prepared.

At an adjourned meeting on the 27th ult., a case in controversy between Messrs. Hine and Son, architects, Nottingham, and Mr. A. Sharpe, contractor, arising out of works executed at Tullamore Church, was considered, on the statement of case by Mr. Sharpe, in which he objected to the deduction of £15 from amount of first instalment by the architects on the ground of "quantities supplied," Mr. Sharpe alleging that there was no agreement, verbal or written, that he should pay for any quantities; and further, that the document or specification giving certain quantities was not a sufficient and usual bill of quantities. The following resolution was come to:—

"That the copy of the specification-quantities document before the Council is not so detailed as to constitute, according to usage here, a bill of quantities that should be paid for. That (there being no mention in any copies of documents submitted of any engagement on part of the builder to pay for quantities) as there was a distinct conflict of statement as to an understanding as to payment for quantities, the Council are of opinion that there must be a mistake on the part of either party, into the merits of which they decline to enter."

The Secretary brought forward a tabulated statement of voting by members of the Institute, on questions submitted by Mr. Burges to the Royal Institute of British Architects, but which were shirked by that body. About thirty members of the Irish Institute sent in replies, and the result of the proportion of votes was as follows:—

1. Is the architect to supply the clerk of works or the tradesman, with the set of tracings referred to in the professional practice paper of the Institute?—The clerk of works.—As 100 to 67.
2. If he supply both the clerk of works and tradesman, an extra set will be required; who is to pay for this extra set?—The client or the tradesman?—The client.—As 100 to 30.
3. Could the difficulty be solved by inserting a condition in the contract that the tradesman shall make his own tracings, to be afterwards inspected and signed by the architect?—No.—As 100 to 62.
4. Should not the clerk of works, and the tradesman, after the work is finished and paid for, be obliged in all cases to return not only the drawings and tracings furnished, but also any copies of the same which they have made for their own convenience?—Yes.—Unanimous.
5. Should orders of the architect to the tradesman go through the clerk of works only?—Yes.—100 to 36.
6. Is it consistent with the position of an architect for him to advertise directly or indirectly in the public journals?—No.—100 to 31.
7. Is it consistent with the position of an architect for him to apply for work, or to offer his services to people not his personal friends?—No.—100 to 30.
8. Is it consistent with the position of an architect for him to be connected with any trading firm in the profits of which he participates, although his name does not appear; or to hold shares in any company formed for the purpose of building, or for supplying building materials?—Negatively unanimously (taking a building as to mean contracting building, or distinguished from a company making loans for building purposes).

Mr. Drew brought forward report of Committee on the Building Bye-laws. Mr. Henderson informed the Council that on applying at the City Hall for a copy of the bye-laws for the information of the Institute, that, in addition to showing no readiness to oblige, the Town Clerk took upon himself to demand a "statutory fee," which would have amounted to about £8, for parting with the printed document!

The reading of the bye-laws, as noted by the Committee, proceeded to an advanced stage, the result of the scrutiny of them

appearing to be that they were in the main well drawn, and calculated, with some modifications in detail, to prove a most salutary measure; but that by evident misadventure or absence of as wide experience on the part of the draughtsmen as the Council possessed among its members, some details were introduced which were open to the strongest objection, and would in practice be impracticable or prohibitory of certain useful classes of building, and some which, looking to the conditions of the Public Health Act, were beyond the scope of such bye-laws.

The Secretary was empowered to communicate with the Local Government Board as to when and how a hearing would be afforded to any objectors, and to make arrangements, if desirable, to appear before the Board, by counsel duly instructed.

Adjourned.

## THE ARCHÆOLOGICAL DISCOVERY AT DONNYBROOK.

DURING the late month the discovery and excavation of numerous skeletons in a field close to an old road near Aylesbury-road, Donnybrook, has led to several letters in the daily press. As the remains of some swords and some spears were also found, with a few coins, which appear to be modern, various conjectures and theories have been put forward. Some of the writers contend that the site of the discovery was one of the battle-fields of the ancient wars of the "Gaedhill and the Gael," or one of those fierce conflicts in the tenth century in which the native race and the Danes contended for mastery. Other writers put forward strong reasons for believing that the remains are belonging to those who fell at the battle of Bagginbath in 1649. It would be useless for us to reproduce all the correspondence that has taken place on the head of this discovery. We, however, give portions of two of the letters, one by Dr. William Fraser, F.R.C.S.I., and the other by Mr. Richard Maunsell. The former writes:—

As I intend to describe the entire circumstances of this remarkable find at an early meeting of the Royal Irish Academy, I will not trouble you with details better fitted for the Academy than for the pages of a newspaper; but as it may gratify many of your readers to know a few particulars and to see for themselves the weapons, &c., discovered in that locality, I will have the weapons deposited for exhibition in the rooms of the R. I. Academy, in Dawson-street, and with them a skull bearing unmistakable marks of a sword cut quite sufficient to satisfy any jury as to the mode of death in that individual at least.

The weapons are—No. 1. A Danish iron sword, similar to several already in the museum of the Academy, some of which were discovered near Kilmaham a few years ago, and also similar in shape and construction with iron swords preserved in the Museum of Copenhagen. 2. A well-preserved spear or lance-head of iron, 16 in. long, and which was at least 2 in. longer when perfect at the point, and similar to a Danish spear figured in Worsaae's work on Danish Antiquities. No coins were found except a penny of George III. on the surface of the clay. A few horse bones lay scattered at one point. As for the cockleshells said to have been observed, I did not see them, but the workmen told me they were near the surface and had no connection with the bones, which lay on the level of the original soil, and had been covered with a superficial layer of clay, not thicker than one or two feet at the utmost.

Mr. Maunsell (being the second letter he wrote on the subject) observes:—

I have had an opportunity of consulting several authorities who give accounts of the battle of Bagginbath, namely—"Carte's Life of Ormonde," "The Liber Munerum," "Warner's Civil Wars in Ireland," and "Leland." All the accounts of the battle agree substantially. It was fought at Bagginbath, close to the shore and river. As the possession of it would give Ormonde the command of the river, and enable him to intercept any supplies from England, his holding it must have led to the immediate surrender of the city. The site of the battle at its commencement must have been somewhere near the present church of Irishtown, probably between it and Tritonville-road. If we could identify a place then called by the unsavoury



name of "Lowsey-hill," we would have less difficulty in doing so.

The battle seems to have lasted there but a very short time, Ormonde's men, particularly his right wing, being thoroughly routed before his arrival on the field, the Wicklow men being described as in full flight to their native mountains. Ormonde succeeded in rallying two regiments, but these when attacked were also speedily put to flight. This must have taken place some little distance from Baggotrab-row. The place where the bones are lying is about an Irish mile from what must have been the site of the commencement of the battle, and would be in a direct line towards the Dublin Mountains, to which some of the army are described as retreating.

The bones found at Ailesbury-road may be the remains of those who fell in the final effort which Ormonde personally made to retrieve the fortunes of the day after the defeat of the right wing, and the fall of Vaughan, the major-general who commanded it.

But there is another and a darker solution of the mystery. Carte puts the dead at six hundred, wishing, perhaps, to minimise the loss and defeat of Ormonde. Other historians mention two, and even four thousand, and that about fifteen hundred prisoners were taken, of which more than a-half were put to the sword after the battle. Looking at the situation, I am inclined to suppose that these bones now found represent the victims of this brutal butchery—another instance, independent of Drogheda and Wexford, to show that the soldiers of the Commonwealth "did not," to use their own cant expression, "do the business negligently." If so, they are a sad memorial of a savage act of a brutal age, when human life counted for very little.

Either of these suggestions would account for the presence of these bones. I think the latter the more probable. But perhaps some other more careful student of Irish history may suggest some other and less painful solution of the mystery.

P. S.—Since I wrote the above, on my return to town I saw in your paper the letter of "J. S. A." I think we substantially agree. I do not think the bone indicates a greater antiquity than 1649, so that I fear I must give up the Danish solution of the mystery. I ought to have mentioned that the commander of the victorious army was Colonel Jones, who afterwards inflicted a severe defeat on the Irish army (under, I think, Preston or Lord Gormanston) between Trim and Summerhill.

Dr. Frazer further writes:—

There is much misconception about this discovery of human remains. Sufficient evidence is, I believe, obtained to show that it was not the field of a battle, and that Cromwell's soldiery had as much to do with it as they had with the battle of Clontarf. It was the scene of a cold-blooded Danish massacre, where infants, young children, and females, as well as men, were slaughtered. Proof of this assertion will in due time be laid before the Royal Irish Academy. No such weapon as a stone celt has turned up, nor would I expect it. I saw the alleged celt, which was only a water-worn, soft, argothaceous piece of limestone, a material from which celts were never made. I have the rude Irish pin of bronze in my possession, and the circumstances of its discovery are a link in the chain of evidence of this locality being a scene of massacre and murder.

The locality called "Lowsey-hill," which Mr. Maunsell seems desirous to identify, appears to us to be no other than Lasey-hill, otherwise Lazar's-hill, a name by which Townsend-street, or the further end of it, was formerly known. Lasey-hill occurs in many documents and publications of the latter end of the seventeenth and commencement of the eighteenth century. When Ringsend was the place of the arrival and departure of lord deputies and their trains, and ordinary passengers, Lasey, or Lazar's-hill, was an important place.

It would be no harm for our archaeologists, antiquaries, and others inside and outside the Royal Irish Academy, in investigating the subject under notice, to ask was there any other cause besides a battle, ancient or modern, that would account for such a number of skeletons? It has yet to be proven whether the dead were slain in battle by bullet or by sword. If by the former, the remains must be a modern deposit; if by the sword, dirk, or spear, &c., they most likely belong to an early period of Irish history. Apart from all this, let the question be investigated, where were the thousands of dead buried who were carried off by dreadful plagues in

Dublin at different dates? Without enumerating all the great plagues that visited Dublin from the twelfth century, or earlier, let us note the occurrence of the great one in 1575, which was stated to have carried off 3,000 persons. In 1604, 1605, and 1606, Dublin was also visited by plagues. The pestilential sickness called the "English Sweat," occurred in 1528; another plague preceding in 1525. Other minor plagues later than those of the seventeenth century occurred. Were the thousands who died in Dublin of plagues buried in city or suburban graveyards? or were they carted outside of the city, as was the case in some instances in London in the great plague of 1665, when large numbers were buried at night by torch-light, their burial consisting in tumbling them down indiscriminately into deep charnel or plague pits? Let us ask, also, where were the hundreds of wrecked people buried who perished during the seventeenth and eighteenth century in Dublin bay and harbour, and on the South as well as the North Bull? Were those whose bodies were washed in on the South Bull sands and on the beaches of Ringsend and Irishtown buried in the old village churches of those places? Some few, doubtless, were; but a couple of centuries ago, or even one century ago, people were not particular, at seaside places, in burying in "consecrated ground" those washed in by the waves. We are certainly under an impression that numbers of those who were stricken by plague in Dublin were buried out a distance from the city; but be that as it may, the question is worthy of investigation. In respect to the discovery at Donnybrook, it is possible that the remains are those who fell at the battle of Baggotrab, but there are many fields on the north and south of Dublin, in Fingal and Dubhghall, which will yet yield, when tapped, more surprising and valuable discoveries than those which have come to light at Donnybrook.

#### TECHNICAL INSTRUCTION FOR DUBLIN.

TOWARDS the end of the late month a deputation from the Royal College of Science, St. Stephen's-green, consisting of Professors O'Reilly, Hall, Hartley, and M'Nab, waited on the Lord Mayor, presenting a copy of the proof programme of the evening classes to be held this winter at the above institution, and read the following statement:—

"MY LORD,—In most of the large towns of England and Scotland, where educational institutions of the highest class exist, evening classes form a most important part of their work. Such instruction is given in Manchester, Bristol, Birmingham, Glasgow, &c., by the Science Colleges. The Royal College of Science in Dublin has hitherto only given regular systematic scientific instruction during the day, and it is now proposed to open evening classes, the classes being voluntarily undertaken by some of the professors. As there exists in Dublin a large class unable to derive benefit from existing institutions on account of their being engaged during the day in the workshop or in business, the Professors of the Royal College of Science desire as far as possible to place within the reach of such persons the means of becoming acquainted with the science on which their avocations depend. Hence the fees are extremely low, and as no payments on results are to be made the whole will be done without entailing any extra expense upon the Government. We therefore beg your lordship, as the representative of the citizens of Dublin, kindly to use your influence in making these evening classes more widely known to large employers of labour in the city, and as useful as possible to those for whom the instruction is principally intended."

Professor O'Reilly called his lordship's attention to the importance given to technical education by the municipalities on the Continent, and mentioned the fact lately cited in the newspapers, that the city of Lille has sent a certain number of students, having gained prizes or exhibitions in the Municipal Technical Schools, on a scientific tour through the principal cities in England, thus enabling them to carry back to the city most valuable technical knowledge—the real capital of great industries.

The Lord Mayor stated that personally the proposed course of lectures would have his hearty support and approval, as he fully recognised by his own experience the want of such technical education in the city.

We consider the above a step in the right direction if the work be carried out efficiently, and if the young artisans of the city will, as they ought, avail themselves of the facilities which are now placed within their reach by the College of Science, and also the classes of the Metropolitan School of Art. We have persistently, for long years in those columns, hammered away at the subject of technical education.

#### THE CITY ENGINEER AND HIS ASSISTANTS.

Re SEWER PLANS.

AT an adjourned meeting of the Corporation, held on the 20th ult., on the report of the Public Health Committee for August, 1879, coming up for confirmation—

Mr. M'Evoe asked how Mr. Thomas Mulvany, C.E., and Mr. Philip Maguire, C.E., had been employed, the former at 10s., and the latter at 6s. 8d. per day, in preparing surveys and plans in connection with the new sewers, when they had the City Engineer and his staff?

Mr. Mulligan said the work had to be done within a given time, and one of the staff having been withdrawn from the sewer department, they required this assistance. The City Engineer said the plans could not be got ready for the Local Government Board by October, as required, unless he got this assistance. The work was now finished, and the services of these gentlemen dispensed with.

Mr. Doyle quite agreed with Mr. M'Evoe that an extra staff should not be employed without the consent of the house.

Mr. M'Evoe said this had been done in face of a bye-law which declared that no committee should expend over 30s. a-week on extra salary without the consent of the council. He moved that the paragraph in question should be omitted.

Mr. French seconded the motion.

Mr. Murphy supported the motion. They had five engineers in their employment, and surely they could have got out these plans if they had faced the work themselves.

On a division the voting was 12 for the motion and 7 against it.

Legal or illegal, the employment of the additional C.E.s at the rates named per day, does not seem to us to be a very fat rate of remuneration.

#### A BRIDGE NOTE.

WE call the following very "instructional" yet "alarming" paragraph from the "Irish Provincial News," printed in a recent issue of a morning contemporary. Our friend, the county surveyor, had better look sharp, or a "Royal Commission" may issue to inquire into his neglect (?) of this "lofty bridge of a single arch" !—

"A DANGEROUS BRIDGE.—The lofty bridge of a single arch across the river Owen-dougher that forms a junction with the Dodder at Butterfield, Rathfarnham, is in a most dangerous condition to be travelled over. It appears that the base of the arch has been hollowed, the large loose stones having been displaced by the recent flood of waters. Here the Crnagh river flows sometimes very rapidly and forcibly. The road authorities should see that the granite stone structure is sufficiently strong, and not merely have it supported by its own curve. It is said that the bridge has lost its perpendicular, and should at once be looked after in order to avoid accidents."

REWARD OF MERIT.—We have much pleasure in recording the award of a substantial pension to Mr. James Tocker, for many years foreman and clerk of Works to the Irish Lights Commissioners, and chief superintendent of the more than ordinary difficult erections at the Comingleigh Fastnet, Calf Rock, and Skelligs Lighthouses. Having been constantly employed under Mr. Sloane's cognisance for past thirty years, that gentleman was able to make such representations to the Board of Trade and Irish Lights Board as have enabled them to give Mr. Tocker a larger retiring allowance than was ever before granted to a foreman.



## THE ROSE AND THE LILY IN HISTORY AND HERALDRY.

By JOHN VINYCOMB.

THERE is a wonderful amount of interesting lore connected with the history of these two celebrated flowers—more than, perhaps, any other flowers that we know of. The continual theme of poets and lovers of nature in all ages, the acmé of all comparison in what is bright and beautiful in their respective similarities. Both flowers have a mythical history glowingly indefinite; they have also a great story in love, in peace, and in war; the saintly Lily and the lovely and voluptuous Rose have each had devoted admirers in ancient and modern times. In religion and politics they have as emblems had no unimportant influence in confirming the faith and determining the nationality of entire peoples. For centuries they served as the distinctive badges of two great and warlike nations in their deadly contest for supremacy on the Continent. The national floral emblems of England and France, the Rose and the Lily hold an important place in literature and art; and in their practical uses, when such emblems had a real purpose, they had the great merit of being simple and distinctive in character. The Rose was of later adoption by the English Plantagenet princes, and does not hold the same place on the English shield as the Lilies do on that of France. In France from very early times until the expulsion of the Bourbons, the golden fleurs-de-lis occupied the armorial shield of that country in the same way that the lions do on the arms of England. The Rose was the royal and national badge just as the Lily was, but it did not appear on the national shield like the French device, the lions holding the field on our shield from about the time of the Norman Conquest.

"That which we call a Rose," says Shakspeare, "by any other name would smell as sweet"; to our enemies who had suffered from its prickles the fact may be questionable; under any name would it smell as odious, or, as Mrs. Malaprop said of comparisons, "odorous." In our own country, during the Wars of the Roses, the adherent of the Lancastrian party who held the red Rose as his badge could not look with complacency on the colourless blossom of the House of York, nor the Yorkist on the bloody Rose, as he termed it, of his hated rival but with sanguinary thoughts intent. Humanity sickens at the unnatural slaughter of those times,—the country devastated and deluged with blood to satisfy the ambition of a lot of worthless princes, and the sweet innocent Roses were made vile party emblems in the fratricidal strife.

From ancient times the Rose has retained over all competitors the pre-eminent title of the Queen of Flowers. We find it taking a prominent part in the popular myths and traditions of the various nations who have held it in honour, while legends innumerable cluster round its origin, especially the red Rose.

Among the Greek and Latin poets some have dedicated the rose to Cupid, and others to his mother Venus, who, they say, transcended in beauty all her rivals, just as the rose excels all other flowers in its combined charms of graceful form, lovely colour, and exquisite perfume. Theocritus tells us that the Rose was formerly white, but that it was changed to red by the blood of Venus which fell upon it from her thorn-pierced feet as she ran distracted at the dying voice of Adonis. Spenser refers to the story:—

"White as the rose before the change  
Which Venus' blood did in her leaves express."

Another ancient poet would assign the origin of the red rose to the blood of Adonis himself, a rose of that colour springing up on the spot where he died; this legend was adopted into what we may call the Christian mythology in mediæval times; another tradition tells us that a white Rose grew at the foot of the cross, and that the blood of the Crucified One falling upon it tinted it vermilion; a similar tradition among the Turks

attributes the circumstance of the change to Mahomet.

According to Anacreon, the rose was dyed with nectar by the gods when that delicious beverage was first made and tasted. By another account the God of Love is said to have been the accidental cause of this transformation, having in his gambols while leading the dances on Mount Olympus, overturned a vase of nectar, which falling to the earth changed the formerly white blossom into red. It is again said to owe its beautiful blooming tincture to the chastisement inflicted upon Cupid himself by his incensed mother—for the mischief and scandal he had caused her—with a branch of the white rosebush, so severely as to cause the blood to flow, and hence originated the blushing hue of the Queen of Flowers.

The Rose was also dedicated to Aurora, to the Graces, and likewise to Bacchus. Harpocrates, the god of silence, was crowned with Roses. The Romans used to strew Roses over their streets during public festivals; at banquets the guests wore chaplets of Roses, the beauty and fragrance of their bloom, no doubt, enhanced the sense of joy and pleasure of the feast. All these delights have been divinely sung by Horace and Anacreon. But another and a deeper significance lay hid in the Rose down in its "heart of hearts." As the golden heart of the Rose is embedded and hidden by its petals, so the sentiments of love and pleasure should be hidden and dwelt upon in the heart rather than made a topic of conversation and publicity; hence the Rose itself was regarded as the emblem of silence, and any secret undertaking as performed "*sub-rosa*" or "under the Rose," and the old custom of suspending a Rose above the table at banquets as an intimation that what transpired in conversation was not to be repeated. Haydn, in the "Dictionary of Dates," refers to the custom, "from the circumstance of the Pope presenting consecrated roses which were placed over confessionals to denote secrecy." Newton, in 1587, speaks of the hanging of Roses over tables "in parlours and dining-rooms as a common country custom," and Peacham, in 1638, says that they were so painted in this position as well in England as in the low countries." This symbolism of the Rose, doubtless, led to its being employed with the cross as the badge of the Rosicrucians, which was a cross of a deep rose red with a Rose entwined about it, and hence arose the name of the order.

Many are the Rose traditions of the East—

"Where the light wings of zephyr, oppressed with perfume,  
Wax faint o'er the gardens of Gul in her bloom."

The followers of Zoroaster believe that before the introduction of the evil principle into the world, Roses were without thorns. This idea is also referred to by St. Basil. Tavernier says that "the Ghebers (or fire-worshippers) believe that when Abraham, their great prophet, was thrown, by the order of Nimrod, into the fire, the flames turned instantly into a bed of Roses whereon the child sweetly slept." Another eastern tradition asserts the "Burning Bush" in which God appeared to Moses to have been a rose-tree. The Turks to this day pay great reverence to the Rose, believing it to have sprung from the sweat, or, as some say, the blood of Mahomet.

Mediæval Christianity contributes largely to the legends of the Rose, many of which will be familiar to every reader. The red and white Roses found in the tomb of the Virgin after her Assumption; those sent to St. Dorothy from the heavenly garden; the institution of the *Rosary*, prayers on which were symbolized by red and white Roses compressed and strung together, now substituted by coloured beads by the faithful. "The Romance of the Rose" was a mediæval poem written about 1300. The Rose typified the Virgin Mary, and the towers and defences of the castle the four cardinal virtues and holy chastity and buxomness and meekness; for centuries its readers with pious and religious eyes learnt from it their

maxims of morality, science, and philosophy. Others, again, saw in it only a delightful love story, and nothing of that mysticism or scholastic subtlety. Chaucer's translation is considered very good.

The *Rosa Mystica* of the Catholic Church symbolises Christ, and is alluded to in the Book of Canticles. The prophet Isaiah makes it the similitude of the joyful flourishing of Christ's church.

Sunday *Latare* (according to Pugin's "Glossary") is called Rose Sunday, because the Pope blesses a golden Rose which is carried in procession through Rome, in order, say the mystics, to represent the joy of the day which shines like a Rose amidst the thorns of Lent.

A golden Rose was frequently sent as a present to temporal sovereigns with much formality and state, and happy the monarch on whom such a mark of the approval of the Holy See was conferred—such a consecrated Rose was sent by Pope Gregory XIII. to Charles IX. of France, as a special mark of favour and approbation on the successful manner in which the massacre of St. Bartholomew was conducted, and Protestantism in France completely stamped out for ever, as they thought. In our own times we may have occasionally seen in the papers of Pope Pius IX. sending a golden Rose to a Catholic sovereign—some beloved son of the church, from whom much was hoped.

In the seventh century, according to the venerable Bede, the tomb of Christ was painted of an intermingled colour of white and red, or rose colour; the white Rose was the emblem of monastic wisdom and renunciation of the world. A crown composed of branches of the white Rose with its leaves, thorns, and flowers borne in the arms of some religious houses (says Anselme, an old writer on symbolic heraldry) denotes the chastity which is preserved amidst the thorns and mortification of life.

*Wars of the Roses.*—Though so famous in ancient story and mediæval legend, the Rose owes its popularity as the floral emblem of England, primarily to the long and deadly contests between the rival houses of York and Lancaster.

Mr. J. R. Planche, in his "Pursuivant of Arms," has a learned and interesting enquiry into the origin of the well-known Rose badges of the York and Lancaster factions, but without any very definite result; his opinion, however, being that the Rose was a badge of the Plantagenets before the time of the alteration in the Temple Gardens immortalised by Shakespeare in the first part of King Henry VI. Richard Plantagenet, afterwards Duke of York, and John Beaufort, Earl of Somerset, speak as follows:—

*Plantagenet*—

Let him that is a true-born gentleman,  
And stands upon the honour of his birth,  
If he suppose that I have pleaded truth,  
From off this briar pluck a white Rose with me.

To which Somerset rejoins—

Let him that is no coward nor no flatterer  
But dare maintain the party of the truth,  
Pluck a red Rose from off this thorn with me.

Warwick avows his choice—

I love no colours, and without all colour  
Of base insinuating flattery  
I pluck this white Rose with Plantagenet.

*Suffolk*—

I pluck this red Rose with young Somerset;  
And say withal, I think he held the right.

It is needless to repeat the whole of this interesting scene, handed down to us by a writer who no doubt had some popular tradition for his groundwork. "It appears to me," says Mr. Planche, "that whether this scene be founded on history or tradition, does not affect the origin of the badges of York and Lancaster, but simply the selection of those particular cognizances as signs of company for the partisans of the rival houses in the fatal war that followed. There is not a line throughout the scene which can be taken as intending to shew that these badges were then for the first time assumed." It is stated in the Harleian MS. No. 304 that Edward I. gave as a badge a Rose, gold, the stalk vert, but this is unsupported by any



authority known to exist by those who have written on the subject; "but," says the same authority, "there are several reasons for our believing the assertion to have some foundation in fact," and he recounts the evidence in favour of his view. "The mother of Edward I. was Eleanor of Provence, and I am strongly inclined to believe we are indebted to that land of song and chivalry not only for the fragrant '*Rosa centafolia*' which perfumes our gardens, but also for the floral emblem of the house of Lancaster." "The tomb of her second son, Crouchback, Earl of Lancaster, is stated by Camden to have been in his day adorned with red Roses." The Rose also appears upon the seals of others of her descendants, and John of Gaunt, "time-honoured Lancaster," claimed the country of Provence, and assumed the red Rose as his badge in right of his descent and of Blanche, the heir of Henry, Duke of Lancaster and Provence, whom he married. From this source Mr. Planché traces the origin of our floral emblem. He supposes the "Rose of Provence" might have been retained by the Beauforts and Somersets in token of their descent from John of Gaunt, the husband of Blanche, in preference to the favourite cognisances borne by their half brothers to whom had been strictly limited the succession to the crown of England.

The original of the Rose of Provence (*Rosa Gallica*) referred to, was brought from the Holy Land by Thibault, the poetical King of Navarre and Count of Champagne, on his return from the Crusades. This rose tree which he planted in his city of Provins flourished and multiplied so well, that the city became famous on its account; a successor of Thibault adopted it as his badge or cognizance. On the marriage of Blanche of Lancaster and heiress of Champagne to John of Gaunt, he assumed the device of the Red Rose, so fatally known as the Rose of Lancaster.

The two families, York and Lancaster, were afterwards united by Henry VII., Earl of Richmond, the male heir of the house of Lancaster marrying the Princess Elizabeth, the eldest daughter and heiress of Edward IV. of the house of York, anno 1486. The two roses thus united became the royal badge under the Tudors, and termed "the Tudor Rose," which was represented as a double Rose, one Rose growing within the other either by placing a white Rose within the red, or *vice versa*. If the device is frequently repeated, they are often placed alternately in this way. Sometimes single red and white Roses were united or conjoined per pale, or down the middle; sometimes they were divided quarterly of the two colours.

The conventional or heraldic Rose may be of any of the tinctures of heraldry, though usually it is blazoned either *gules* or *argent*. A white or red rose may with propriety be described in blazon as a Rose of York or Lancaster respectively.

The rose in heraldry should never be depicted with stalks and leaves unless specially described in the blazon, and unless so described are always to be represented as rosettes, like the flower of the wild Rose conventionally drawn, that is as single (not double) flowers, each having only five petals, the edge of each being slightly curled forward and with the barb-like points of the calyx shown projecting from between them, and hence termed "*barbed*"; these parts are always green, as the "*seal*" in the centre is gold or yellow, which being their natural colour may be termed "*proper*." Thus a red Rose would be blazoned or described in heraldry as a *Rose gules, barbed and seeded proper*.

In the decorative treatment "of the Rose" in ornamental work of all kinds, it is generally drawn with the stem, branches, and leaves; but with heraldic Rose blossoms and buds either the single or double flower.

Of all lovely roses now grown in such perfection it is unnecessary to say one word—they are sufficiently well-known. It may, however, be mentioned that the *York and Lancaster Rose* of the florists is a striped

variety of the *Damask Rose*, and must not be confounded with the heraldic, compounded, or Tudor Rose. *Rosa mundi*, "the Rose of the world," called in honour of fair Rosamond, is a striped variety of the *Provence Rose*.

The wild Rose is helieved to be the kind referred to in the dispute between the York and Lancaster princes in the Temple Gardens, London, as there is little doubt that it is the unassuming origin of all the varieties of our garden beauties, and that it is a native of our own as well as of other lands.

The name of the Rose is said to have sprung from the Celtic *Rhos*, red. The Greek word *Rhodon* signifies the same. The inland of Rhodes takes its name from the same source, and means the inland of Roses. The ancient name of the shrub was *Rubus*, which is also expressive of red colour.

The name *Eglantine* used by poets and early writers is the wild Rose, but which species is not very clear, and there are some eighteen distinct kinds subdivided into many varieties. Who has not seen the hedgerows in the height of summer almost lined with every shade of Rose colour, from the deepest pink to the most delicate blush, fading into white? answering to Shakspeare's description:

"The Roses fearfully on thorns did stand  
One blushing shame, another mute despair,  
A third, nor red, nor white, had stolen of both."

The tenure of a manor by presenting a Rose on a certain day was a frequent custom in early times. The white Rose of York was a sign of the tenure of that honour by the Castle or Tower of Clifford, and may have suggested the distinctive colour of the Rose badge of that branch of the Plantagenet family, as it no doubt did the name of the fair daughter of Walter Clifford, *Rosa mundi* or Rosamond, Rose of the world.

There exist not a few instances of Roses in armorial bearings earlier than the accession of the house of Lancaster, which may have been adopted from religious ideas, as in chaplets of Roses and "the Rosa Mystica" of the church to which reference has already been made.

It would be wrong also to consider that all or even the majority of existing coats of arms containing Roses are of so early a date as the accession of the house of Lancaster; as Roses, having continued to be the Royal badge ever since, have frequently been granted as principal charges and augmentation of honour.

Mr. Lower, in his "Curiosities of Heraldry," says—"The interest taken by the Cornish gentry in these civil contentions may account for the frequency of the Rose in the arms of Cornwall families," and he gives instances also of families who it is supposed changed sides, judging by the altered complexion of the Roses on their escutcheons at a different period.

The Rebellion in Scotland under the Pretender and his grandson Prince Charles Edward ("Bonnie Prince Charlie") revived the White Rose as the emblem of a later York—James II. and the exiled house of Stuart; the superstition of Royalty and devotion to the family and person of the Pretender had taken firm hold of the Highlanders, and was only cured after much blood-letting and the crushing defeat at Culloden.

"The White Cockade" of Jacobite song symbolised "the Rose that's like the snaw" of the Pretender. The birthday of the Chevalier St. George, as he was called,—a day regarded with lively interest by his adherents—the 10th of June, was supposed to be the day the white Rose came into bloom.

"Of all the days that's in the year,  
The 10th of June I love most dear,  
When sweet white Roses do appear,  
For the sake of James the rover!"

The infatuation and enthusiasm of the Scots for the worthless family must have been very great, if we may judge by the amount and the very great beauty and plainness of much of their poetry; for instance the song beginning—

"A wee, wee bird came to our ha' door,  
And O but it sung saulry,  
And aye the overcam o' its sang  
Was 'Wae's me for Prince Charlie.'"

Or in a more hopeful strain—

"There grows a bonnie briar bush in our kailyard;  
White, white are the blossoms o' it in our kailyard,  
Like we bit white cockades for our own kailan' lads,  
And the lassies lo'e the bonnie bush in our kailyard."  
(Refrain or "chorus.")

Lines feigned to have been written during the Wars of the Roses, and presented with a White Rose to a lady, with whose politics the writer was unacquainted:—

"If this fair Rose offend thy sight,  
It on thy bosom wear;  
'Twill blush to find itself less white,  
And turn Lancastrian there.  
But if thy ruby lips it spy,  
As kiss it thou may'st deign,  
With envy pale 'twill lose its dye,  
And Yorkist turn again."

—HAY DRUMMOND. Adapted from verses by Somervale, 1692-1742.

(To be continued.)

## ST. LURAICH'S CHURCH, MAGHERA, CO. LONDONDERRY.

### THE WEST DOORWAY.

THE ruined church at Maghera presents features perfectly unique amongst Irish ecclesiastical remains, whilst at the same time it occupies a well-defined position, and marks a definite stage in the development of our native styles. It is the culminating point to which the style of doorways characterised by massive lintels and sloping jambs, and enriched by architraves round them, attained to. After this the arch came into full use, and was developed into the beautiful Irish Romanesque of Kildare, Timahoe, Tuam, Clonmacnois, Cormac's Chapel, and so many other examples.

According to the late Lord Dunraven's "Notes on Irish Architecture," Maghera was originally Machaire Ratha Luraich. "Ratha Luraich, signifying the rath of Luraich, was the ancient form, and continued to be employed as Rath Loury in ecclesiastical records. When the word Machaire (plain) was prefixed, the name Machaire-ratha-Luraich was too long for convenient use, the last word was dropped, and was thus corrupted into Maghera."

The same "Notes" describe the church "as a simple oblong 71 ft. 10 in. by 20 ft. 5 in. wide, which does not seem to have been divided into nave and chancel. The east wall is almost gone. The other walls are built chiefly of some trap or basalt rubble and good sized stones, cemented with yellowish mortar. The walls are 18 ft. high and 2 ft. 8 in. thick. Above the doorway the Crucifixion is represented, carved in relief, the figures of the eleven disciples, and the two soldiers with spear and sponge, whilst the architrave also is richly sculptured. There is a square tower at the west end, which prevents its being properly photographed. This tower has two large plain arches on the north side. It has three offsets, and the tower hatters slightly. Over the arches there are long round-headed windows, the arches scooped out of one stone. This tower does not look as old as the west wall of the church, and is of better masonry."

Lord Dunraven calls especial attention to the figure above the ornament which runs down the side of the architrave, which, says he, "is of great interest. It represents a Saint triumphing over Evil, the sharp pointed crozier being plunged into the body of the serpent writhing at the foot of the saint." I should here state that this piece of ornament, and the figure over it, is merely a copy from Lord Dunraven's work, for the advent of steady rain, which began to drop freely through the ivy that nearly closes the open top of the tower, effectually put a stop to any



West Doorway

of

S<sup>t</sup> Iurgen's Church

Мѣстѣ

С<sup>t</sup> Лондондергу

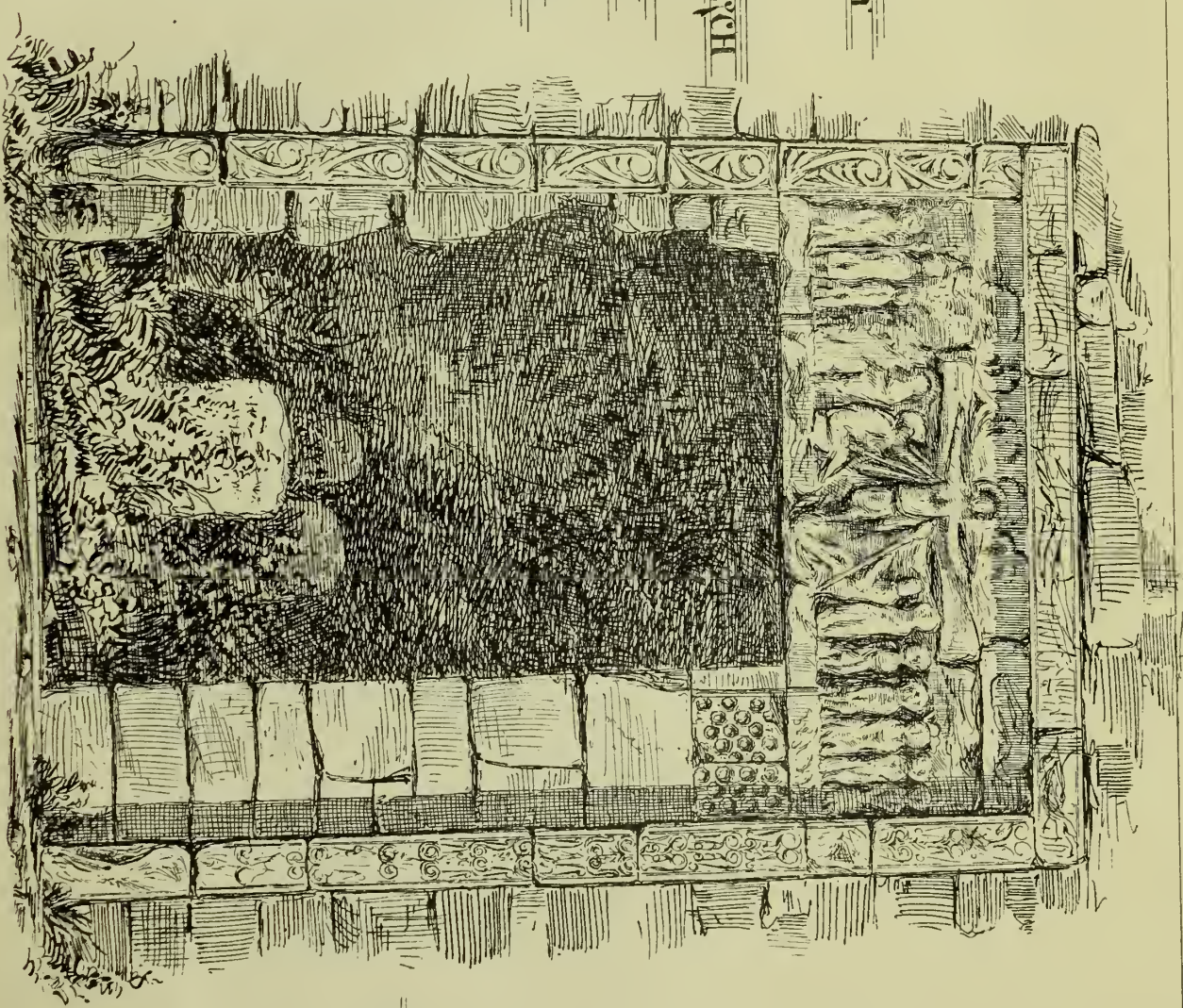


FIGURE ON SIDE OF ARCHITRAVE.



Jamb and double scale.





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attempt to finish my sketching—this little corner having been left till the last. I am informed, however, through the kindness of the Rev. B. B. Gough, Rector of Maghera, who has compared it with the original, that this drawing is substantially correct. The thanks of all archæologists are also due to the same gentleman for the care he has taken of this structure, as a few years ago the south jamb had nearly followed that on the north side, but through his care it has been rebuilt.

Miss Stokes, in her work on the "Early Christian Architecture of Ireland," which in general endorses Lord Dunraven's opinions, would seem to give a somewhat different interpretation to the group round the cross on this doorway. She says: "The primitive style of the entablature has not yet passed away, to be succeeded by that of the arch. With horizontal lintel and inclined sides, this doorway stands before us in all the dignity and simplicity of Egyptian architecture, an example—and perhaps the only one—of the entablature style enriched with Christian symbols. The Crucifixion, with lance and sponge, the figure of the Saviour draped to the hands and wrists, the three disciples, and the women standing near, are carved upon the lintel."

In the same County of Londonderry is the doorway of the church at Banagher, which is almost identical with that of Maghera, with the absence, however, of any sculpture.

F. W. L.

#### ADVERSARIA HIBERNICA, LITERARY AND TECHNICAL.

WANT of forethought or presence of mind in the face of serious difficulty or disaster, is put down as a characteristic of the Celt; but this want of forethought is quite as often to be found in the person of the Saxon. A slight mistake, a forgetfulness, or the neglect of attending to a trivial affair, often leads to a chapter of serious and sometimes fatal accidents. With workmen and those engaged in the mechanical arts, want of precaution is the cause of many accidents. A single nail, a plug, wedge, pin, or dowel, if left out or not driven home in its intended place, leads to the fracture, the tearing asunder, and the falling down of work constructed or in course of construction; and this timber framework, as in the case of a roof, may drag the greater part of a building with it. In domestic or household matters precipitation and want of forethought result in various accidents and losses. The proverbs and maxims illustrating this neglect or want of forethought are many. "As for want of a nail the shoe is lost, for the want of a shoe the horse was lost," &c.; and "losing the sheep for the hap'orth of tar," or the bit of raddle, or "shutting the stable door when the steed was lost."

The following story, told by Mr. Say, though published long ago, may be usefully reproduced in the present generation, because it well illustrates the chapter of accidents that may occur through a slight neglect—accidents and losses that are always possible and are seldom or never anticipated: "Being in the country, I had an example of one of these losses which a family is exposed to through negligence. For the want of a hatchet, of small value, the wicket of a barn-yard leading to the fields was left open. Everyone who went through drew the door to; but as there was nothing to fasten the door to, it was always left flapping, sometimes open and sometimes shut. So the cocks and hens and chickens got out, and ran off into the woods; and after the pig ran all the people about the place—the gardener and the cook and the dairy maid. The gardener first caught sight of the runaway, and, hastening after it, sprained his ankle, in

consequence of which the poor man was not able to get out of the house for a fortnight. The cook found, when she came back from pursuing the pig, that the linen she had left by the fire had fallen down, and was burning; and the dairy maid having, in her haste, neglected to tie up the legs of one of her cows, the cow had kicked the colt, which was in the same stable, and broken its leg. The gardener's lost time was worth twenty crowns, to say nothing of the pain he suffered. The linen which was burned and the colt which was spoiled were worth as much more. Here, then, was caused a loss of forty crowns, as well as much trouble, plague, and vexation, for want of a latch which would not have cost threepence!" Very true, and not badly illustrated!

How many thousands of pounds would not railway companies save yearly for their shareholders, instead of paying them away as compensation for accidents and loss of life, if they more universally and with greater care worked on the block system, adopted better modes of communication between the guards and the drivers or the passengers and the drivers, or wisely expended a little more in organising an efficient working staff and a system of relays! Making one set of men do another set of men's duty, or rather forcing men to do too many duties, some of which are attended with great responsibilities, is "losing the sheep for the hap'orth of tar." In the building and other trades great neglect is often shown by young men, and, indeed, by old ones too betimes; and one lazy, careless, or negligent workman often endangers the lives of a number of his fellow-workmen by the neglect of a precaution that would not take him a minute to attend to. During the progress of a building a number of loose boards are often laid down on a floor of naked joists, to form passage-ways or room or space for workmen to stand upon when engaged at one or more necessary operations. Sometimes in laying down these temporary deals or boards, dangerous traps are created through the heedlessness of a young workman in not drawing the end of the board on to the joist. Another length of board may head against the former one, completely overlapping the thickness of the joist, but one of the lengths being unsupported at its end, forms a regular trap to a workman when tread upon, often dropping him on the floor of joists 12 ft. underneath, breaking his legs or arms perhaps. Should he not drop through by extending his arms or falling sideways, he is still likely to be severely injured by his fall.

The above, however, is only one of the many traps arising in building operations through the carelessness of workmen. Were we inclined, like Mr. Say, to follow up the sequence of some of these building accidents to their conclusion, we could cite many melancholy results. The breadwinner, long confined in a public hospital, his family in the meantime living on charity or in the poorhouse, or death eventually, and a widow and a number of small children driven to beggary or the poorhouse.

How careful ought not workmen to be of their own lives and those of their fellow-men whilst engaged in mechanical and industrial pursuits, when a little thought will show them the possible results of a neglect, and a little forethought will prevent a serious calamity which must be a sorrow to the contributor as well as a life-long one to the family, who have suffered and will perhaps suffer for long years through the loss the accident has occasioned. "A stitch in time saves nine" is not a bit more true than that a nail or a screw in time often saves an expenditure of many pounds for a new article or piece of work, and perhaps a loss of life as well. The employer who endangers the lives of his workmen from neglect of making due provision in materials or other appliances they require of a proper kind in the prosecution of their work, or the workmen on the other hand, who through positive negligence endanger the lives of his fellow workmen, should be held accountable if accident or death should ensue. Compensation in some cases will

meet the circumstances of the case, but condign punishment will be warranted in other cases, as deterrents are often needed to make masters, workmen, and others do their duties.

During his first and only visit to Ireland, in 1825, Sir Walter Scott spent several days visiting the old public buildings, ecclesiastical edifices, and the institutions of Dublin. He met many literary and professional men of note during his stay, whom he previously knew, Irish and English, and his visit on the whole was pleasant. St. Patrick's Cathedral, Marsh's Library, the Deanery, &c., had an interest for Scott, being associated with the name and career of Swift, whose genial biographer Scott became. Before visiting Dublin, the "Great Unknown" was a friend and correspondent of Maturin, the Irish novelist, and had a high opinion of his genius and his works. It was Scott's intention to edit an edition of Maturin's works, and during his visit to Dublin he called on Maturin's widow to evidence condolence and mitigate her sorrow by an act of munificent generosity. It is to be regretted that Scott was unable to fulfil his intention of bringing out an edition of Maturin's works with an introduction which would doubtless have a high value, but the failure of the publishing house of Constable and Co., with which Scott was connected, led to disastrous consequences rendering the great novelist responsible for enormous debt, which had the effect of breaking down his health, though with a noble spirit while he lived he continued to wipe out his responsibilities. After his return to Scotland, Scott feeling his embarrassments, wrote to Mrs. Maturin telling how he was obliged through his own pressing affairs to relinquish the task he had undertaken.

Scott, while in Dublin, made several saunters north and south in search of books he desired to purchase. Old bookshops and bookstalls in different quarters of the city were visited. He wished to make additions of rare works and tracts on Irish history to his library, and thus his several book hunts through the shops of the old booksellers, and dealers in second-hand books on the stands, stalls, in the recesses of public buildings or against the dead walls, stalls that were more common some years ago than at present. It is told of Scott that on several occasions he sallied out by himself on his book quests at an early hour after breakfast. On one particular occasion, however, he was observed to remain at a bookstand upon the quay leading to the Custom House, for a considerable while, and during the time he never took down a book from its place. He stood with his hands behind his back during the whole time, patiently and carefully going over the titles of the books inscribed on their backs. Scott expressed his disappointment in not picking up easily in Dublin the books he required, and to make up for his ill fortune he went the day before he left Dublin to the shop of Mr. Milliken in Grafton-street (the predecessor of the firm of Hodges and Smith, now Hodges, Foster, and Figgis), and there expended upwards of £60 in the purchase of books solely relating to the history and antiquities of Ireland. It may be seen from the above that it was Scott's intention had he lived, and had not troubles overtaken him, to have given us other works on Ireland and Irishmen, besides that of Swift. While in Ireland, Scott made a tour to the County Wicklow and visited several of its most remarkable scenes, and he also visited the Lakes of Killarney and other places in the south of Ireland. During his stay he made a long-promised visit to our celebrated countrywoman Miss Edgeworth, the novelist, at her residence at Edgeworthstown, and it was in company with her he visited Killarney. On the 14th of August, 1825 (Sunday), Scott celebrated his birthday in Dublin by entertaining a large party of his friends at his son's house in St. Stephen's Green (Scott's son was at the time quartered in Dublin with his regiment, the 15th Hussars). On the



Wednesday following, the great novelist, sailed from Howth Harbour in the Harlequin packet, Howth at that time being the packet or mail boat station. In Scott's visit to Dublin he was accompanied by Mr. Lockhart, his son-in-law and subsequent biographer, and his daughter Miss Scott. The birth day of Napoleon and Scott were the same, and the initial of William Shakespeare and those of Scott were of course identical. Those coincidences were appreciated with a little pardonable vanity or weakness on the part of Scott; but Lord Byron, *i.e.* Noel Byron, was said to be not a little proud also of his initials corresponding with those of the great Napoleon.

The late John O'Donovan, in some of his early essays and illustrations of the Irish language and ancient Irish literature, nigh fifty years since, proved conclusively the antiquity of corn mills and millwrights in Ireland. In one of these essays ancient mills, the grinding of corn, of corn yards, barns, &c., he furnishes some extracts with translations and notes, showing the nature of the old Brehon Laws, and the laws bearing upon mills, corn yards, barns, forges, &c. The translations were from a MS. in the library of the Royal Irish Academy, being copies from more ancient ones on vellum in the library of Trinity College. The original is faithfully given, but none save those versed in the oldest forms of the Irish language could have made a faithful translation. Though the original text, according to O'Donovan, is interlined with a gloss of a comparatively modern age, yet even the commentary or explanation had become quite obsolete, and, to most Irish scholars, nearly as unintelligible as the text itself. Here was the old Celtic law in relation to grinding at the mill, and it may be usefully read in connection with our opening remarks in first note of present "Adversaria":—

"If the mill-stone should slide off or break without the knowledge of any one, it is then as the sledge should slide off the anvil. There are three concerned, viz., the millwright, the man who is grinding corn, and the miller. If the miller knew there was any danger, he is forthcoming for any trespass done. If the millwright and the man grinding his corn fear anything to happen, the man who is grinding his corn is answerable for any damage done afterwards, and the millwright is free. Why is the first sliding of the mill-stone a trespass here, and the first sliding of the sledge not made a fine above? The reason is, the mill is turned by water, the sledge by hands of men.

If the miller, the millwright, and the man whose corn is being grinding he present, and the miller knew there was any danger, he is answerable for all the damage. If the miller be not present, whether he knew there was danger or not, and should the millwright be present knowing that there was danger in regard to his own work, he is answerable for any danger that may happen.

Why is the man whose corn is being grinding charged here for a trespass, and why is the other not charged? The reason is, the man whose corn is being grinding made no obstacle, and took upon him to be under any damage that might happen.

The miller is free if the rest consented to go on with the grinding. The first sliding of the stone is not to be charged to any. If the millwright should leave the mill in bad order after him, he is to pay all the debt or damage, and if any mischance should happen by the strength of the water when the mill is not in bad order, the miller then is to pay all the fines."

A great part of the laws are carried on as above by way of question and answer—a system observed even still in many of our modern treatises on different subjects.

Respecting corn yards, barns, &c., O'Donovan gives us the following extract:—"It is proper to bring corn to barns, &c., for setting and threshing, and this to be done in a due and lawful manner. The corn is to be made up in ricks or stacks (*crucachs*), the two-thirds of the rick to be underneath, and one third uppermost," &c. The following is translated from the Annals of the Four Masters, under the year 998:—"The stone of Ailbhe fell (Moyilve was the chief fortress of Moybra), and Maelseaghlainn (King of Temor) made four mill-stones of it." For

further mention of Irish mills we are referred to the "Life of S. Mochua," by the Bollandists, where S. Fechin's mill, at Fore, in the County Meath, is alluded to. In Giraldus Cambrensis, "Topographia Hibernica," and the "Life of Fechin" in the "Acta Sanctorum," there are further allusions. In several parts of Colgan's "Acta SS." there is mention of mills, ploughshares, chariots, corn barns, &c., and also in Adamnan's "Life of Columbkille." What we have quoted above goes to show that the early Irish were not simply a pastoral or barbaric people, and that hand querns or grinding stones were not the sole grinding appliances which the inhabitants depended upon for their supply for domestic or other wants. The existence of a code of laws for the management of mills, and for the control of numerous other requisites at such an early period in the history of Ireland, incontestably proves the Celts were a highly civilised race when the predecessors of their detractors were little less than savages.

## II.

### DWELLING-HOUSES: THEIR SANITARY CONSTRUCTION AND ARRANGEMENTS.\*

## LECTURE IV.

(Continued from page 317.)

A VERY important matter in the sanitary administration of large towns, and an important matter for the consideration of every householder, is the regular and frequent removal of house refuse known as "dust." This consists chiefly of ashes and cinders; but, unfortunately, the dust-bin or ash-pit is only too convenient a receptacle for all kinds of refuse matters, including kitchen *débris*, and so, in a large number of instances, these receptacles become, especially in hot weather, excessively foul, and an abominable nuisance. If the dust were removed daily, as it should be wherever this is practicable, the mixture of organic matter with it would not be of great importance, but where this cannot be done, it is very necessary to insist that the dust-bin shall be used for nothing but ashes, and that all organic kitchen refuse, such as cabbage leaves and stalks, shall be burnt. This can be done without any nuisance by piling them on the remains of the kitchen fire the last thing at night; thus they are gradually dried during the night, and help to light the fire in the morning. It is necessary for every householder to take care that his dust-bin does not become a nuisance to himself or his neighbours, from too large an accumulation being allowed to remain in it, or from improper matters being thrown into it. Dust receptacles ought not to be kept inside houses, as they very frequently are. Neither ought they to be built against the wall of the house, unless cased with an impervious layer of cement, to prevent emanations from them percolating through the walls into the interior of the house. They ought always to be covered with a sloping roof, so that the rain may run off; if rain water is allowed to get into them, they are much more likely to become a nuisance. Rain-water pipes ought not to be carried through dust-bins, or foul air from the latter will get into the pipe through a leaky joint, or a damaged place, and ascend it, causing a nuisance in one of the upper rooms, or elsewhere. I have known a serious nuisance caused in this way.

Cesspools were formerly largely used, especially for houses built on porous soils. A pit was dug, into which the excretal matters were discharged and allowed to percolate away into the soil—frequently into neighbouring wells. Often there was not only no attempt at making this pit impervious, but every facility was given to allow of the percolation of the foul water, &c., into the soil around. Thus the walls (when there were any) were made merely of rough blocks of stone placed one upon another. In some

instances, these pits were not opened for many years together. Such cesspools were constructed long before water-closets came into use, and were often retained after the introduction of these. In many instances they are placed underneath houses, and under the basements of large houses there are sometimes several of them. They form a serious nuisance, lasting for many years, as foul air from them finds its way into the house, even when there are no waste pipes directly connected with them, as there generally are, and thus they are very dangerous to health, even supposing that they are so placed as not to contaminate the water supply. In some towns, it was, positively, formerly a practice to dig them down until a spring, or water of some kind, was reached, in order that they might not require to be emptied. In all old houses, it is imperative to search diligently even for unused cesspools, and to trace the course of every pipe from every part of the house. In many instances, openings from the basement floor lead into disused cesspools, even in houses that have been drained, and the cesspools presumably abolished. A basement drain is not unfrequently allowed to discharge into an old cesspool, after a properly constructed sewer has been made to receive the refuse matters from the water-closets. This is a source of great danger to the inmates of the house.

In some instances, however, cesspools are made of brickwork set in cement and lined internally with a layer of cement, so as to be impervious to water. They then require to be emptied periodically, a process which often causes a considerable nuisance, and they require, moreover, to be at a considerable distance from the house, and to be disconnected from the house drains and sewers. Not unfrequently, however, they are placed directly underneath the house or under the court-yard, as is commonly the practice in Paris and many other continental cities and towns.

Refuse matters become nuisances and injurious to health when they are allowed to remain in the vicinity of habitations. In all towns where refuse matters are not removed immediately there is a high death-rate, and especially a high children's death-rate, and in all towns where refuse matters are removed more speedily than they were formerly, the general death-rate has been lessened. The improvements that have been made, then, in conservancy systems consist in diminishing in various ways the size of the receptacles, so that the refuse matters cannot be collected in so large an amount, or kept for so long in and near the house, and in making receptacles impervious to water, so that liquids cannot escape from them into the soil around, nor water get into them. Sometimes the receptacles are drained into the sewers, so that the liquid part can run away, leaving the contents of the receptacle drier. The improvements in cesspools, then, have consisted in making them smaller and smaller, and, lastly, moveable—the *fosses mobiles* of the Continent: the pans, pails, tubs, &c., of some of our large towns. These movable receptacles are placed underneath the seats of the closets, fetched away when full by the scavenger, and replaced by the empty ones. They are, or ought to be, fitted with air-tight lids, so that as little nuisance as possible may be caused by carrying them to the carts; but, as may be expected, in many instances they are allowed to get too full, and a great nuisance is often caused in the houses. Nevertheless, this plan is a considerable improvement upon the plan of large buried cesspools.

We now come to a consideration of the dry-earth system, which was brought into prominence by the Rev. Henry Moule. It consists in throwing over the excretal matters a certain quantity of dried and sifted earth, when an absorption takes place, and a compost is produced which is perfectly inoffensive to the sense of smell. The earth may be dried and used over and over again for five or six times, or even more, and any

\* By Prof. W. H. Corfield, M.A. Being the course of Cantor Lectures for 1879, read before Society of Arts.



earth except chalk or sand will answer the purpose. It may be thrown by hand, or by a self-acting apparatus moved by the weight of the person, or by the door of the closet, or by a pull-up apparatus similar to that ordinarily used in water-closets. It will be seen at once that with this system there is not only something to be taken away, but something to be brought into the towns and into the houses—the dried earth; and this constitutes a very serious objection. However, it is an objection that might perhaps be waived, if the system could be satisfactorily worked on a large scale and by careless persons, for it is essential, in a large town at any rate, that a system for the removal of refuse matters must be used which can be worked by the most careless persons. . . . Earth-closets are suitable for use in villages and country houses in the open air, but they ought not, in my opinion, to be placed indoors even in the country. Where the earth can be collected and dried on the spot, and the compost afterwards used upon the garden, the plan has been found very useful if only sufficient care be exercised, and no nuisance need be produced.

One of the most important of sanitary principles is, that the refuse matters should be removed as speedily and as continuously as possible from the neighbourhood of habitations, and the principle of all conservancy systems is that the refuse matters are to be kept in and about the house, at any rate, as long as they are not a nuisance, which of course means that, in a large number of cases, they become a serious nuisance. It is also obvious that the carriage of the refuse matters entails considerable cost under any of these systems, and so the less frequently they are removed the less does it cost, and what is detrimental to the life of the population becomes advantageous to the ratepayers. If the manure so collected were valuable, it might, of course, be made to pay the cost of collecting, but this is not the case as a rule, the only instance in which any of these systems have been made to pay being where the excretal matters have been collected in pails or tubs, unmixed with anything which would lessen their value.

As opposed to the conservancy systems, we have the water-carriage system, by means of which the refuse excretal matters are conveyed away in the foul water by gravitation through the sewers, and are thus removed from the houses as speedily and cheaply as possible by means of the pipes, which must in any case be provided in towns, to get rid of the foul water. The sewage is increased in bulk, but is not rendered perceptibly fouler by this admixture. Indeed, as a rule, the sewage of a town supplied with water-closets is less foul than that of a town supplied with middens. Although, however, sewers are necessary in towns to carry the foul water away, in country places the slop water may be allowed to run into the surface drains, provided they do not pass near wells.

(To be continued.)

### THE SANITARY CONGRESS AT CROYDON.

THE third annual Autumn Congress and Exhibition of the Sanitary Institute of Great Britain opened at Croydon on the 21st ult. There were nearly 200 stands or stalls, containing upwards of 700 exhibits, building and sanitary appliances, and some other exhibits, too, having no particular connection with the object of the exhibition. Among the large number of London and provincial firms exhibiting, there were some Dublin ones, and others with Dublin agencies. A large amount of skill was evidenced in the manufacture, or production of some of the appliances, and, compared with former exhibitions, some of the articles showed improvements in design and construction.

In the evening, at the Public Hall, Dr. B. W. Richardson, President of the Congress, delivered his inaugural address, entitled, "Salutland, an Ideal of a Healthy People."

It was a very well-conceived and interesting address, based on the same lines as his former proposal, two or three years ago, of an ideal City of Health or Hygeia; but we fear its realisation is very far distant, even in a more modified form. Still the paper of the worthy doctor and earnest sanitary reformer is very suggestive, and will set other sanitary and social reformers a-thinking and working to improve the personal and public health, and to leave the world in a better and more healthy state at their death than what they found it when they commenced their labours.

On Wednesday Dr. A. Carpenter opened the proceedings in the Sanitary Science Section (of which he was president) by an able address. The remainder of the day was occupied by the reading and discussion of papers. Professor De Chaumont, F.R.S., read a paper on "Some points in reference to Drinking Water." Dr. Horace Swete followed in a paper on "Interpretation of Water Analyses for drinking purposes." Dr. Norman Kerr dealt with the subject of the prevention of mortality from alcohol. Papers were also submitted by H. C. Burdett on "Hospital questions;" and by Dr. Strong on "The necessity of Pure Air in Sleeping rooms." In the evening there was a *conversazione* given in the Public Hall.

On Thursday, Captain Douglas Galton, as President in the Section of Engineering and Sanitary Construction, delivered an opening address.

The sectional business was commenced by the reading of a paper, and a very instructive one, by Mr. W. Eassie, C.E., on "Bad Plumbing." \*

Mr. Bailey Denton, C.E., read a paper on sewer pipes being effectively ventilated by pipes carried above the tops of dwellings.

In the same section, after luncheon, a paper was read by Major-General Scott, on "The Effects of Long-continued Application of Sewage-water to the same Land." The conclusions arrived at were that though town sewage alone will lead to a speedy exhaustion of the mineral constituents of good soil, washing them out, and that the excess of nitrogen as compared with phosphoric acid is wasteful, a supplementary supply of phosphoric acid at critical periods provides a remedy.

Mr. Henry C. Burdett read a paper, "The Unhealthiness of Public Institutions," in the course of which he remarked that "it is a scandal that the unsanitary condition of so many private houses is the origin of so much avoidable disease. It is a disgrace that any public institution should be without a reliable plan of its drainage or a perfect system of hygiene. How much longer is it to be possible to declare that if a man is really anxious to guarantee to himself six months' perfect immunity from preventible disease he must get committed to one of her Majesty's prisons? And why? Because private houses and public institutions are not free from preventible impurities, whilst lodgings, and even hospitals are too often, compared with prisons, highly dangerous abodes for any one who is likely to have a tendency towards zymotic diseases."

In the evening Dr. Corfield read a paper on "Sanitary Fallacies." He considered that "the proper way to ventilate sewers is to have a sufficient number of openings leading into them from the surface of the roads, as has been demonstrated over and over again."

On Friday, in the section devoted to "Meteorology and Geology," an opening address was delivered on the subject by Mr. J. Symons, F.R.S. Mr. Symons said that meteorologists could tell us the range of temperature to which we were liable in this country; but who could point to even one house so constructed as to resist equally well extremes of heat and cold? As regarded the majority of houses built to be sold, it was patent to every one that this consideration was entirely neglected. The walls were so thin that they allowed the internal tempera-

ture in summer to run up to 80 degrees or more, and in winter far below freezing. There was rarely any outlet for the foul and heated air when it had found its way up the staircases. Everybody knew that foul and heated air ascended, and yet rooms rarely had any outlet within two feet of the ceiling. To aggravate the evil, gas was burned in the rooms, and the deoxygenised air rose into the permanent stratum of foul air—heated air, perhaps. If it were possible to compel every builder to remain for an hour with his head close to the ceiling of the room he built, an alteration would not be long deferred, unless the foul air killed them all. In cold weather it was discreditable to hear on all sides complaints of the inconvenience arising from frozen water-pipes, and from their leakage when a thaw followed. Mr. Symons then referred to the terrible unhealthiness of our churches, theatres, and other places of public assembly. As regards churches, it was not for him to apportion the blame ecclesiastical architects and churchwardens, but he could not understand a preacher looking at the gradual drowsiness spreading over his congregation, and not reflecting that it was quite as much the natural result of poisoning by bad air as of any lack of interest in his ministrations.

Some other kindred papers were read in this section, and discussions thereon took place. A cordial vote of thanks was passed to Dr. Richardson. It was intended originally that the congress should close by the public dinner on this evening, but owing to the number of papers it was found necessary to hold a supplemental meeting on the following day.

On Saturday Dr. B. W. Richardson presided, and the following additional papers were read, the discussion thereon being very brief:—"On Scientific Quarters for British Soldiers," by Dr. Balbernie; "On Ventilation of Buildings," by J. E. Ellison; "On Disinfection of Excreta," by Dr. Soper; "On Purification and Softening of Water by Dr. Clarke's Method," by Mr. Potter.

The results of the Congress are held to be satisfactory. The president expressed himself as not in despair that his ideal "Salutland" may in some modified form be yet carried out.

The exhibition of sanitary appliances will remain open at Croydon until the 7th inst., and on the evening of the 8th there will be free admission to working men, when some prominent members of the Institute have promised to deliver lectures.

### NEW CARPENTERS' WORKSHOPS, FITZGIBBON-STREET.

ON the ground contiguous to the termination of Fitzgibbon-street and Margaret-place there has just been completed by and for Mr. G. F. Tyrrell, builder, a fine range of workshops for carpenters and joiners. There is a range of 210 ft. by 26 ft., 2 storeys in height, built in the most substantial manner, and with the best devised methods of ventilation, and everything to secure the comfort of the employés. Mr. Tyrrell has secured the greater portion of the ground between Great Charles-street and Fitzgibbon-street. Fronting the latter street there is a three-storey building in brick, with dressings of white brick, limestone frieze and granite cornice, from the plans of Mr. F. Morley, of Nassau-street. In this building will be the offices, &c., requisite for carrying on a large trade in the building line.

HOUSE DRAINS AND FITTINGS.—Mr. Robert Maguire, of Dawson-street, thus concludes a long letter, suggested by the late Royal Sanitary Commission:—"If the really dangerous condition of the drains and fittings of Dublin houses was fully realised householders would then set about remedying the evil in each individual case. The most perfect system of main drainage will not effect the remedy, but so long as house drains and fittings remain as they now are, just so long will the death rate of Dublin be abnormally high."

\* We intend to print this paper in our next issue.



## THE ROYAL COMMISSION ON THE SANITARY STATE OF DUBLIN.

We have already given a summary of the evidence up till the seventh day. During the succeeding five days of the sitting many witnesses tendered evidence, the majority of whom were examined, but to a considerable extent the evidence respecting the sanitary state of Dublin was a repetition of that previously given. However, some additional information was elicited with varying features, which, no doubt, will prove useful to the Commissioners in drawing up their report. We will now briefly summarise the chief points of the concluding days' proceedings.

On Monday, 13th ult., Dr. James Little, Vice-president of the College of Physicians, said the great cause of Dublin mortality was the extreme frequency with which ordinary catarrh attacks, bronchitis, measles, coughs and colds were allowed to become chronic complaints. Another great cause was that ordinary rheumatic attacks, which a very small amount of care on the part of the patient might prevent any bad results from, were frequently allowed to become severe and to end in incurable heart disease. The artisans were prepared to spend their money on drink, before they provided themselves with the ordinary necessaries of life, to an extent that did not prevail anywhere else. The artisans could afford, on their present wages, to have a better class of houses than they had.

Mr. Commissioner Rawlinson asked if the tenement houses of Dublin remained as they were, would not any vigorous measures to stamp out a disease be merely doing the work of Sisyphus—rolling a stone up a hill which would roll down again? The witness said he thought they would be rolling away one of the stones. Smallpox could be dealt with by isolation, cleanliness, and complete vaccination.

Dr. Head, President of the College of Physicians, said he did not think the Liffey had much influence on the high death-rate of Dublin. The cause of the high death-rate was imperfect house drainage, bad scavenging, drunkenness, poverty, and a low moral condition of the people that they did not care for comfort. The houses in Fitzwilliam-square were badly drained.

The Rev. Samuel Haughton, M.D., F.T.C.D., concurred in the evidence given about the bad state of the tenement houses of the city being the great cause of the disease. The boulder clay of Dublin was impervious to water, and therefore it naturally kept up a damp soil under the houses, that was *prima facie* a disadvantage to Dublin. Another disadvantage of their geological position was the impossibility of getting proper broken stones for their streets, but no matter how well they macadamised the streets they never could get rid of the calp mud which made their streets so bad. The poor in Dublin twenty years ago were better lodged than at present. A quarter of a century ago the poor in Dublin did not understand the Irish Language, but now there were plenty of them who did, showing that there was an influx into the city of the Irish-speaking poor from the west of Ireland.

Mr. J. Ousely Moynan, B.A., submitted a scheme which he proposed for the drainage of the city.

Dr. C. R. C. Tichborne, gave evidence as to the condition of stable lanes in the city, which he considered most fruitful sources of atmospheric and other contamination. These lanes frequently consisted of half stables and half tenement houses, densely crowded. They abounded all over the city, and he had personal experience of their general characteristics, for there was one immediately behind his private residence (Gardiner-street). Witness described their condition, and suggested that they should be properly drained and subjected to proper control.

Mr. J. A. Fahie, C.E., recommended the wholesale removal of tenement houses in which

they found several families lodged, and the substitution of improved dwellings in their places. He thought these could be carried out with greater economy and advantage by private individuals than by the municipal body; but the houses when constructed should be put under the supervision of a competent public officer.

Mr. A. C. Smith advocated a system of domestic scavenging. He was the owner of several tenement houses in the Coombe district, and his experience was that the collection of refuse, ashes, &c., in dust-pits led to frightful contamination of the atmosphere, and consequently to disease. It would, he was convinced, be for the public advantage if the sanitary officers were authorised to prosecute the tenants of tenement houses in place of landlords for offences which they (the tenants) committed.

On Tuesday, the Registrar-General (Dr. Grimshaw) was examined, and gave some statistics respecting the death-rate. He said for many years past there had been an increase in the number of deaths in Dublin from diseases of the respiratory organs.

Mr. John Young stated that he had been for the last five years inspector of cleansing under the Corporation of Glasgow. His duties embraced the supervision of public and domestic scavenging. The population of Glasgow was 550,000, and its rateable valuation £3,418,000. The number of dwelling-houses in Glasgow in 1874 was 101,368, and the number had increased since then. There had been a decrease in the death-rate of Glasgow since he was appointed. The number of dwelling-houses he had mentioned did not mean separate houses, but included the several flats of houses, each of which was counted. Glasgow was very well sewered. The sewers emptied into the Clyde. The house drainage was good, though susceptible of improvement. He had inspected the tenement houses of Dublin—there was nothing so bad in Glasgow. He had very little in the way of compliment to offer to the authorities who had brought him over. The sanitary condition of Dublin was almost as far as possible from what it ought to be. Many of the tenement houses would elsewhere be at once condemned as unsuitable. The gross cost of the scavenging and cleansing of Glasgow had been for the last five years about £60,000 a-year; but against that a revenue had been derived of £30,000 a-year by the sale of material. There are 31,000 water closets in Glasgow. The cleansing of Dublin might be effectually done for £27,000 a-year. There are over 3,800 refuse pails in use in Glasgow. They are of galvanized iron, and cost about 6s. each, two being required for each house.

Mr. John Malcolm Inglis was examined, and mentioned that he and Mr. John McEvoy had been for a long time Honorary Secretaries of the Citizens' Main Drainage Committee. For many years the Port and Docks Board had annually supplied about 150,000 tons of ballast to ships, deriving therefrom a revenue of about £13,100 a-year. Their monopoly in the supply of ballast had been done away with, and he suggested that the street sweepings accumulated in the depot should be sold as ballast. Depots for the reception of it should be established on the north and south sides of the river, and when dry it could be used as he suggested. At South Great George's-street he had had an opportunity of discovering the condition of things underneath the sites of the houses which have been cleared away for the new market. There were four or five dozen of disused cesspools, which had no connection with main sewers. The older of these were dried up, and were not very offensive, but the condition of some of the more recent ones was fearful. One which had been connected with a tripe-boiling establishment was most offensive.

On Wednesday, the 15th, Dr. Norwood was examined at considerable length. Was a member of the Public Health Committee from 1866, when it was formed, until last year. Was also a member of the boards of

guardians of the North and South Unions, and consequently had had considerable opportunities of learning the condition of the city and of the poor. So far back as 1833 he published a pamphlet, in which the Commissioners would find a good deal of information on the subject of the state of portions of the north side of the city and their inhabitants. In the year 1846 Mr. Hayward, an English Queen's counsel, and Mr. Brasington, an engineer, held an enquiry under a commission very similar to the present. They made a report, on which the Dublin Improvement Act of 1849 was passed. Their report quoted one which had been previously made by Dr. Willis on the state of the parish of St. Michan, and mentioned that they had themselves inspected dwellings, passages, and courts in that parish, and found that the supply of water was deficient, and that there was great overcrowding of families into single rooms of small dimensions, filth, and consequent corruption of the atmosphere.

In answer to Dr. MacCabe as to whether the neighbourhood of St. Michan's parish still remains in the condition described in his pamphlet, Dr. Norwood replied that a good many old houses have been removed under a local act, which gave power to the Board of Works to erect additional buildings in connection with the Four Courts; but it is only within the last two or three years that one of the worst districts in that place—namely, Bull-lane—has been in any way improved. The condition of many of the streets there remains extremely bad.

Dr. Norwood further observed that the district lying between Christ Church Cathedral and St. Patrick's Cathedral and Meath-street was similar to that which he described. The late Sir Benjamin Guinness intended to clear away an abominable nest of dwellings there, and open up a People's Park; but unfortunately his death, which occurred shortly afterwards, prevented him from carrying out that most benevolent intention.

In continuation, Dr. Norwood said that no doubt the dirty habits of the lower classes gave rise to a great deal of illness, but their filthy condition arose in a great measure from their poverty; whereas he was prepared to say that persons in a higher position of life than artisans, and living in Dublin, did not keep their houses in as neat and clean and in as good a sanitary condition as they ought.

Mr. Commissioner Rawlinson, on behalf of his colleagues and himself, stated that they had received very valuable assistance from Dr. Norwood not only on that day but throughout all the inquiry.

Mr. P. F. Leonard, C.E., engineer of the Drumcondra Township, gave some particulars concerning the Drumcondra district, and said that the Tolka was the outlet for the sewage of the locality.

Mr. Rawlinson observed that the township authorities should put up clarifying works at their own expense, and send the sewage into them before letting it go into the river, and that should suffice until a more efficient outlet could be got through the main drains of the city.

Mr. Leonard said he had already impressed on his board the expediency of constructing clarifying works, and he was glad that that plan had the sanction of so high an authority as Mr. Rawlinson. Dr. Nedley in his evidence had stated that mortar was made with sewage water at some new buildings, and an impression had gone abroad that that had occurred in the district of Drumcondra. Such was not the fact. It happened in the city.

Mr. Edward McMahon stated that he and Mr. Lomhard and also other persons had built a large number of houses in Berkeley-street, Fontenoy-street, and other places, which were let to one and two families, at rates varying from 6s. to 12s. a-week. These houses were of one storey, had not more than three rooms, and were provided with a Varty water supply, water-closet, and drain running to the main sewers. He believed that if houses of this class were built to a large extent, they would attract the people who could pay 3s. or 4s. a-week, and leave more



room in the old tenement houses for those who were so poor as to be able to pay only 1s. 6d.

Dr. J. Emerson Reynolds, Professor of Chemistry, T.C.D., stated that during last year he examined wells connected with two or three manufacturing establishments in the city, and he found that they exhibited unusual signs of contamination. He also examined some house wells, of which there were a considerable number in Dublin, and found that although the water could not exactly be called foul, it was unquestionably polluted. The soil in the vicinity of those wells was saturated with water. The high death-rate was due to the joint operation of a large number of causes, but an important one amongst them was the accumulation of water in the subsoil; and he considered that in any drainage scheme that should be carried out it would be necessary to provide for the removal of that subsoil water. It had been found that rheumatism, phthisis, enteric fever, and some other diseases which were prevalent in Dublin, were associated elsewhere with districts in which there was an accumulation of ground water.

Mr. Rawlinson remarked that Holland was almost entirely a country with a waterlogged subsoil, and yet the death-rate amongst the people was not high.

Dr. Reynolds added that he was not in favour of allowing the Liffey to remain in its present condition, but on the other hand he would not be in favour of expending all the means available for sanitary improvement upon its purification.

Dr. William Fausset, Officer of Health for Clontarf, stated that one of the results of the flow of sewage into the Liffey had been to disfigure and cover with foul mud the strand of Clontarf, which would otherwise be one of the most beautiful suburban districts around Dublin. He protested against any system of drainage which would send more sewage upon Clontarf strand.

Mr. Rawlinson said it was not intended to bring the sewage of Dublin to Clontarf unless by an intercepting sewer, which could also be made available for the removal of the sewage of Clontarf.

On Thursday, Mr. James Boyle submitted a full statement of his evidence. It referred to several matters which previously appeared in evidence. The document named all the Acts of Parliament under which the Dublin Urban Sanitary Authority act, and it appeared that in January, 1867, there were in the city 8,796 tenement houses.

Mr. Commissioner Rawlinson said that on the preceding day he walked along the Liffey, from Essex Bridge to Carlisle Bridge. It was low water at the time. He looked carefully along the bed of the river, and was surprised at the small amount of mud that was deposited on the shores above the current. In some of the rivers of Lancashire—which were not tidal rivers—the sides were paved down to the lowest points of the water channel, and were swept down to the channel so as to be cleaner than the paved roads here. Whether or not anything of the kind could be carried out with respect to the Liffey he was not prepared to say; but he was satisfied that during dry hot weather a repetition of the cleansing of the foreshores would not be money thrown away.

Dr. Fitzgibbon gave evidence as to the danger of allowing the washing of clothes to take place in tenements where there was sickness. He had been called in to see persons ill of measles and typhus fever in crowded tenements where the women added to the subsistence of their husbands by washing clothes; and he had actually seen the clothes drying in the room where the sickness was.

Dr. George Moyers, in his evidence, stated that the house drainage in some of the best districts of the city was very bad and insufficient. He had known a case in which water pumped up from a well that communicated with a sewer had produced enteric fever in the house. A great many old disused wells in the city contained stagnant

water, and some of them acted as cesspools. The sanitary authorities should have power to enter, and examine every house for the purpose of seeing whether or not its drainage arrangements were sufficient. He confessed he thought it very strange that even educated people were so remiss in those matters, as he knew them to be. There was a well-known instance of a medical man who lost three of his family, and then died himself of malignant enteric fever, the occurrence of which was traced to the neglect of sanitary arrangements in his house.

Mr. Joseph Maguire, C.E., obtained leave to send in to the Commissioners a written statement on the subject of labourers' dwellings.

The Rev. Mr. Carroll, Incumbent of St. Bride's, gave some historical and sanitary evidence concerning his district. He said he was very much struck by the evidence of Dr. Little and Dr. Head, and that in some respects that evidence was true, but in one respect it required some qualification. An ordinary interpretation of the doctors' evidence was that to a great degree to the effect that drunkenness and disease were commensurate. That was not at all correct in the sense that the drunkards died off, or that every one that died was a drunkard; but it was true in this respect, and it was a most important aspect to be borne in mind, that drunken and intemperate heads of families, by refusing or neglecting to provide for their families the nourishment they required, reduced them to the state of receptivity which the doctors explained.

In reply to Mr. Commissioner Rawlinson as to whether within the last twenty or twenty-five years there had been a great spread of temperance through the lower classes,

Mr. Carroll said he did know as to that; he was aware that there was very general temperance amongst the immense majority of the people in his parish, and he had frequent and many ways of judging. They had scarcely any residents in St. Bride's that did not live in tenement houses, and in regard to the character that had been given such people of being lovers of dirt and filth he had a word to say. Originally—100 or 150 years ago—the houses now inhabited by seven or eight families were each tenanted by one family. The yards had accommodation for one family only, and the result was that the present occupiers could no more prevent those yards becoming dirty and filthy than they could prevent the rain falling from heaven. But a glance at their rooms, and the cleanly attire of their children when sent to school would demonstrate that they were not lovers of dirt *per se*. Those houses brought a very high price in the market, as was proved by some of the recent sales of the Irish Church Temporalities Commissioners. A number of houses formerly belonging to St. Patrick's and Christ Church Cathedrals were auctioned lately, and some of them brought from £200 up to £500, and £600. The site on which his school-house stood was bought in the year 1828 by the Wide Street Commissioners for £1,500. Therefore there was considerable value in these houses, and a great amount of property was invested in them. The tenants, however, were as powerless to remedy existing evils and defects as any one could be. As to St. Bride's School he should say that it was most deficient in latrine accommodation. They had 180 children on the roll, and he suggested that to the present yard of 20 ft. square, which was also the only playground, should be thrown in the old graveyard closed by order of the Privy Council so far back as 1859.

In reply to Dr. McCabe, as to whether any rights of burial were preserved when it was closed, witness said not, and he further observed that it was shown that from the time of the Reformation, when their registers commenced, there had been no fewer than 10,000 bodies interred there, the entire space being 21 yards by 24 yards. He thought that could be now asphalted, and the tombstones arranged perpendicularly along the walls.

Mr. Commissioner Rawlinson was afraid

the practices of the early Christians were blameable for a great deal of the graveyard abominations that existed in these and recent days. He knew of no other communion that encouraged burials in consecrated ground—in their churches and in the yards surrounding them. In many parts of England the graveyards had been so raised above the former level by frequent interments as to cellar the churches, rendering it necessary to descend from 6 to 10 ft. before reaching the floor of the edifice, which was of course constructed originally on the level.

Mr. Commissioner MacCabe said the sanitary authority in Dublin intended converting all the city graveyards they could get closed—and many had been already and others would soon be closed—into gardens, breathing places, or lungs as it were for the city.

Rev. Mr. Carroll said, with regard to Mr. Rawlinson's observation that much of these abominations had been derived from the early Christians, he might be allowed to say that at all events the Liffey was not a modern nuisance. It existed in Swift's time, and the Dean wrote 150 years ago about "Liffey stink and tide in Dublin;" but they did not hear of its injuring any one in these days. It did not kill Stella—at least Swift did not say it did—and if he could he would have taken the onus off himself.

Dr. Rawdon Macnamara, ex-President of the College of Surgeons, who had considerable experience on the south side of the city in his connection with the dispensaries, said that he regarded the state of the Liffey not as the direct cause of disease, but as a powerful indirect factor in producing disease. A fruitful source of typhoid was the connection of closets and house drains with street sewers and the river, and the consequent invasion of poisonous gases. He strongly recommended the providing of public baths and public wash-houses at convenient centres.

Mr. Commissioner Rawlinson said they would certainly recommend the provision of baths and washing houses, and it would be for the Corporation to consider then what should be done.

On Friday, the 17th ult., the last day of the sitting of the Commissioners, Mr. J. Byrne, the Collector-General, and formerly a member of the Corporation, tendered some evidence. He said that his experience of the working of the Public Health Act had shown him that the Liffey, which ought to be a source of health if pure, was, without doubt, a source of disease in its present state. During the present year they had had an exceptionally large rainfall and an exceptional prevalence of cool weather, and consequently the Liffey had not been so offensive. But in warm seasons, with a small rainfall, he never felt anything more offensive in the worst tenement houses of the city than the smell on the river's bank from Carlisle Bridge to Watling-street. Rather more than one-fifth of the area of the city was situated below the level of high water. The Corporation, through the Public Health Committee, were very active for some years in the enforcement of house drainage into the main sewers, and a very large extent of main sewers were put into several streets; but in consequence of the level of the area to which he had alluded the committee were obliged to discontinue the enforcement of drainage into the main sewers from the houses in that portion of the area, in consequence of the main sewers in it being gorged at high water with the sewage of the higher districts of the town, which actually came up the house drains in the lower districts and into the dwellings of the people. He had himself seen in dwellings of the people east of Carlisle Bridge, and particularly on the south side of the river, the evident sewage from house drains forced up by the tide.

In the course of further evidence, and in reply to Mr. Rawlinson, witness said he had no doubt that the causes he had mentioned lowered the health and physical capacity of the people. The Liffey was a means of health when the tide was in, but at low water it was a stinking sewer.



In reply to Alderman Harris, witness said he believed that any attempt to improve the health of Dublin without an improvement of the tenement houses would be only putting the matter on one leg, and that any improvement of the tenement houses without an abatement of the Liffey nuisance, would in like manner be putting the health of Dublin on only one leg. Both must inevitably go together if Dublin is to be a healthy city, or if the persons who live in it are to have the enjoyment of pure air.

In answer to Mr. Rawlinson whether it would be equitable to bring in the townships surrounding Dublin for sanitary purposes, witness replied—Well, I think the townships appear to be healthy, and the residents of the townships would prefer not being brought in. I don't think it would be advisable to marry persons who would not be disposed to live happily together.

The Rev. Robert D. Stoney, Incumbent of St. Matthew's, Irishtown, wished to call attention to nuisances caused by manure works at Ringsend, and mentioned some facts in connection.

Mr. R. White, an owner of tenement houses, stated that he experienced great difficulty in dealing with the poorer class of tenants. Instead of availing themselves of the sanitary accommodation provided they wrecked and abused it, and did so with perfect impunity. Ejectment, so far from being punishment to them, only enabled them to escape a certain amount of rent.

Mr. M. Ganly stated that he owned a number of tenement houses built by his father thirty-five years ago. When the sanitary hobby took possession of Dublin he reconstructed six of those houses with all modern appliances, including perfect sewers, flagged yards, and Vartry water. He let them at the lowest figure, which did not pay him more than five per cent. on his outlay. Since then he had been perpetually annoyed by the conduct of tenants, who were not educated to cleanliness and who abused the appliances provided in the houses, broke the glass, and injured the walls. As long as any part of a tenement house was occupied it was subject to rates.

The above having concluded the evidence offered, Alderman Harris tendered to the Commissioners, on the behalf of the Corporation, their best thanks for the ability and courtesy with which the inquiry had been conducted.

Mr. Commissioner Rawlinson said that the inquiry had been in some respects of an exceptional character. A multiplicity of matters had been touched upon, and evidence had been received of a very important character. It would be the duty of the Commissioners to so consider the facts so committed to them as to prepare recommendations which should bring under the notice of the Corporation efficient and practical measures, and in doing that not to forget the question of cost—not to let ambition run away with them in attempting to put forward what might be termed a magnificent scheme. They should carefully and cautiously consider the plans placed before them with a view to see how they might be reduced so as to result in the greatest amount of public benefit at the least possible expense. In leaving Dublin he would bear with him most pleasant recollections of the kindness received during the period of his visit.

After a few more observations from the Town Clerk and Mr. Dixon, secretary to the Commissioners, the proceedings of the twelve days' inquiry into the sanitary state of Dublin terminated.

**IRON SHUTTERS.**—The new Hull Bank for the Yorkshire Banking Company, and the new Halifax Bank for the Commercial Banking Company (Messrs. W. and R. Mawson, architects), are being fitted up by Messrs. Salmon Barnes and Co., of Ulverston, with their iron bank shutters, worked by their patent balance-weight motion, with special arrangements for raising and lowering them from the inside.

## ON THE NEW STEAM ORGAN.

"How oft has the banshee cried?"

MOORE.

"Tis sweet to hear the watch dog's honest bark,  
Bay deep-mouthed welcome as we draw near home."  
BYRON.

### I.

'Twas post meridian, nearing twelve,  
The night was dark and dreary;  
A nasty fog hung over all—  
Not even grog was cheery.  
The mate tramp'd up and down the deck  
(First officer Mister Byron);  
"Hark! hark!" said he, "what's that I hear?"—  
Its *Wigham's* patent Siren!

### II.

Up spoke our tallest fore-mast man  
(His name was Billy Redmond)—  
"I like the chaps that make that thing,  
Them sons of good Saint Edmund,  
That has their place in Capel street.  
Their chief's a pleasant party,  
And keeps a randyvoos for sounds  
With steam and gas, my hearty!"

### III.

"Why what cares we for schoolboy talk  
Or lecturers' stupid bleather,  
Enough to make a hanimal  
Of gumption strike its father?  
They prate about their focuses,  
And instance Arammore, sir—  
That shiuing light they saw so bright  
When twenty knots off shore, sir!"

### IV.

"One lubber came across the say—  
Sent off from Whitehall Garding;  
Another came from Tower-hill,  
And neither worth a farden,  
As far as brains and knowledge goes  
(I do not tell you fables);  
They set to work to try French rates  
By a set of English tables!"

### V.

"And so because 'twas Hirish  
It had sixty faulty bits—sir  
At least these 'xaminers thought so,  
Lord bless their foolish wits! sir  
'Twas sent all taut from Capel-street,  
With nothing left to *Chance*:  
That light shines through the finest glass  
That ever came from Frauce!"

### VI.

"And still inventing something new,  
To help us on, poor sailors;  
Go to their shops whene'er you will,  
They're at it hard as nailers,  
With copper, brass, and ho-ci-um,  
And the best of Low Moor hiron;  
But chief of all, I says and thinks,  
Is *Wigham's* patent Siren!"

### VII.

"We now can take a smoke at ease,  
Enjoy our glass with pleasure;  
We're not teetotles all as yet—  
We likes a jolly measure!  
In safety now we sails along,  
Tho' mists or fogs environ,  
While we can hear the banshee song  
Of *Wigham's* screaming Siren!"

### VIII.

"Your observation 's quite correct,"  
Replies the mate to Billy.  
"To talk of clouds reflecting sound  
Is all my eye and silly!  
They must do sum'mut for their grub,  
You knows," says Mister Byron.  
"I goes quite cheerful on my way  
When hearing *Wigham's* Siren!"

### IX.

"And now 'leap out,' and heave the lead—  
We're close on Queenstown Harbour!  
That screeching is from Power Head—  
Enough to shave a barber  
(A funny man, and likes his joke,  
Tho' sometimes stiff as hiron).  
"We'll fear not 'Daunt's' nor 'Harbour' rocks—  
Three cheers for *Wigham's* Siren!"

Rus-in-Urbe, 11th Oct., 1879.

Z.

**DUBLIN EXHIBITS AT CROYDON.**—Messrs. J. Edmundson and Co., of Capel-street, had on show at the Exhibition in connection with the Sanitary Congress, held last week at Croydon, *Wigham's* Patent Atmospheric Gas Machine, and their own Patent Pendulum Electric House Bells.

## CORRESPONDENCE.

### ON SANITARY MATTERS.

TO THE EDITOR OF THE IRISH BUILDER.

"Dost thou think because thou art virtuous  
There shall be no more cakes and ale?  
Yes, by St. Anne, and ginger shall be hot!"  
SHAKESPEARE.

SIR,—Having constituted myself a member of the new profession of sanitary inspectors and inhalers of effluvia, it is my desire that you, as the recognised organ of scientific intercourse, give me room to ventilate my opinions. All public men must expect more or less criticism, friendly or otherwise, but *entre nous* it is not the fact of my being originally a manufacturer of useful articles with tinned iron, as my father was before me, or my grandsire being a gravedigger, or perhaps a sexton is a more polite word, will ever prevent my giving the benefit of my immense experience in sanitary matters to the community at large, particularly those who may require to be supplied with any of these articles in which (as a pastime) I deal. I regret to say that my family (save me from my friends!) sneered at the idea of my turning engineer, and one fellow, with a soul not above gas meters, said I had "impudence enough to set up an assurance office;" but let that pass. I know a drain pipe when I see it, and am not without strong hopes that I may meet the requirements of the age in more ways than one.

The mass of ignorance displayed by the people in sanitary arrangements is deplorable, and I could not but be impressed the other day with the wretched state of the bridges crossing the Poddle River to the entrances of the Venetian houses in the Earl of Meath's liberties, and I at once took a note of the circumstance, as I might probably be able to convince his lordship, and other proprietors, that the drains of these houses are in direct communication with the public sewers, which lead from the small-pox hospitals, confectioners' shops, and other objectionable places in the city, and compel them to at once adopt *private* sewers.

The rarity of good air inside houses has also engaged my attention, and I have invented a plan which will compel the air, which is now carried *bodily* past the house drains, to enter bodily into the houses, and give some of its density to the too rarefied effluvia which would otherwise escape into the upper ether. My new syphon filter will effectually prevent any one from drinking out of water crocks, and I have a method of hindering even rats from visiting respectable servant girls, which I will impart to you privately. As to *unfortunate* servants I know nothing about them.

Already I have become known for my ability to detect smells. In Mullinahack I was called on simultaneously the other day by nine different persons, and asked to give an analysis. Although I had a suspicion that they were exerting their *facetia* at my expense, I took no notice of the circumstance, but gravely told them that excreta should not be allowed into a pantry; that too much of Mrs. Allen's Zylbolsamum should not be used, and Eau de Cologne being one of the eleven thousand smells of that interesting city, must be banished from Dublin, as interfering too much with the home production of the Liffey. The number of houses that I have examined in Protestant-row, Dawson-lane, Bull-lane, Greek-street, and other places of interest would surprise you, and what I saw, if I told you, would surprise you more! I found people falling down stairs instead of up, although I told them I would compel them to do the right thing. However, I will say no more at present beyond this—that Rawlinson and Co. made a grave mistake in not taking my evidence on all matters connected with every business excepting my own (of that I am not so egotistical as to pretend to be an authority), especially the main drainage, the most perfect system of which will effect nothing, unless a means which I will design, can be adopted of discharging, beyond the Dublin



Mountains—one of my depots being Lough Bray—where I will manufacture the sewage into many purposes, of which more anon.—  
Yours truly,  
A TINCLEK.  
Charles-street, Oct. 25, 1879.

### THE DONNYBROOK DISCOVERY.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Concerning the discovery of the great quantity of human remains unearthed in the neighbourhood of Donnybrook, perhaps some of your readers or our local archaeologists would be able to inform us where the Government authorities buried the number of criminals who, in the early part of the eighteenth century and previous, were executed at Gallows-green, in the vicinity of the present St. Stephen's-green. I have not met with any authority stating where the criminals were buried. I do not believe they were carted back into the city to be buried in the precincts of the prison from whence they were brought. Possibly, there was some suburban piece of ground or charnel pit where the hanged and quartered criminals were buried; if so, it would be satisfactory to ascertain it. They certainly were not interred in the city or suburban churchyards. The remains excavated at Donnybrook are more likely belonging to the period of the battles of Bagginbally and Rathmines than to the Danish period, on account of their better preservation. Still it may be possible to identify them with a later period, and with causes apart from any battle. I am not aware that any encounter took place between the men of '88 and the Royal forces betwixt Dublin and Bray, although there was a camp established for many months at the period, or previous to the Rebellion of 1798, at Loughlinstown. I throw out the above suggestions for what they are worth, and remain,  
yours, &c.,  
H. C.  
October 29th, 1879.

### SHIPWRECK BURIALS IN RINGSEND AND VICINITY.

TO THE EDITOR OF THE IRISH BUILDER.

SIR.—Now that several of our local notabilities are striving to account for the remains unearthed at Donnybrook, would it not be well to inquire whether there was any spot appointed during the last couple of centuries for the burial of the large number of those persons who were shipwrecked in the bay and harbour of Dublin, before the modern improvements were effected which have rendered these catastrophes of rare occurrence. The annals of Ringsend, Irishtown, and Donnybrook parishes, show that a large number of seafaring men who died on board in the harbour, and from time to time on shore, were buried in the churchyards of these parishes; but there is no evidence, as far as I am aware of, where the large number who perished through shipwreck in the harbour were buried, when their bodies were recovered, as often they were. A long list might be compiled of several of these fearful bay and harbour catastrophes during the seventeenth and eighteenth centuries, and even in the early years of the present century. Here for instance is an account of an event that took place in the memory of still living men. About the year 1808 a pamphlet was published in Dublin entitled—"The Ensanguined Strand of Merriem; or a Stuffing for the Pillow of those who could have prevented the recent calamity in the Bay of Dublin." The writer, under the *nom de plume* of "Phelim O'Flanagan, of the City of Dublin, Esq.," prefixes these remarks to his brochure:—"Sunrise in Dublin Bay on the 20th of November, 1807, exhibited a shore whose boundary was marked by a terrific line of parted limbs and shattered bodies. The storm of the preceding day and night was dreadful. A trader and two crowded transports were driven by the tempests into the bay; fourteen men were saved, and four hundred men, women, and children, were lost. The general view appalled the most

callous heart, but the rigging and hold of the Rochdale were scenes of elaborate horror. . . . Casks and men were intermingled in the hold; but the mutilations must not be detailed." How many of these bodies were recovered, and where were they buried?

In 1650, the year after the arrival of Cromwell, with his 9,000 foot and 400 horse at Ringsend, Dublin was visited by a plague. Were the victorious buried within the city or without it? As late as 1740-1, we had another plague, preceded by a famine, which made great havoc among the poor. Were these burials in city churchyards or some allotted place outside the city? Even apart from the discovery of the human remains at Donnybrook, the above queries might be worthy of answers, if such can be forthcoming.—Yours, &c.,  
R. H. A.  
October 30, 1879.

### LIGHTNING CONDUCTORS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the summer of 1878 delegates were nominated by the following societies, viz., the Royal Institute of British Architects, the Society of Telegraph Engineers, the Physical Society, and the Meteorological Society, for the following purpose:—"To consider the possibility of formulating the existing knowledge on the subject of the protection of property from damage by electricity, and the advisability of preparing and issuing a general code of rules for the erection of lightning conductors." The delegates have held several meetings, and have already collected, firstly, from the manufacturers of lightning conductors, and secondly, from the

members of the Royal Institute of British Architects, a large amount of thoroughly practical information. Several of their number are also engaged in forming abstracts of the salient features of the literature of the subject. The members of the Conference are, however, most anxious that their report should be as trustworthy and as exhaustive as possible, and they have therefore instructed me to ask you to assist them by publishing this epitome of their proceedings, and allowing them to invite correspondence upon the points mentioned below.

G. J. SYMONS, F.R.S.,

Secretary to Conference.

Great George-street, S.W.

*Class of Facts Most Required.*—Full details of accidents by lightning, stating especially whether the building struck had a conductor or not. If there was a conductor, state its dimensions—construction—mode of attachment to building—whether its top was pointed—distance of its upper terminal from the place struck—nature and extent of the connection between the conductor and the earth, and whether the earth was dry or moist—whether the conductor was itself injured—and whether the conductor or the point struck was the most salient object in the vicinity. Information is also desired, either verbally or by sketches, as to the position of metal spouting and lead roofing relatively to the point struck, and to the conductor. Details of the thickest piece of metal melted by a flash of lightning are much needed. Unimpeachable evidence of the failure of conductors is much desired, as such failures would be extremely instructive.

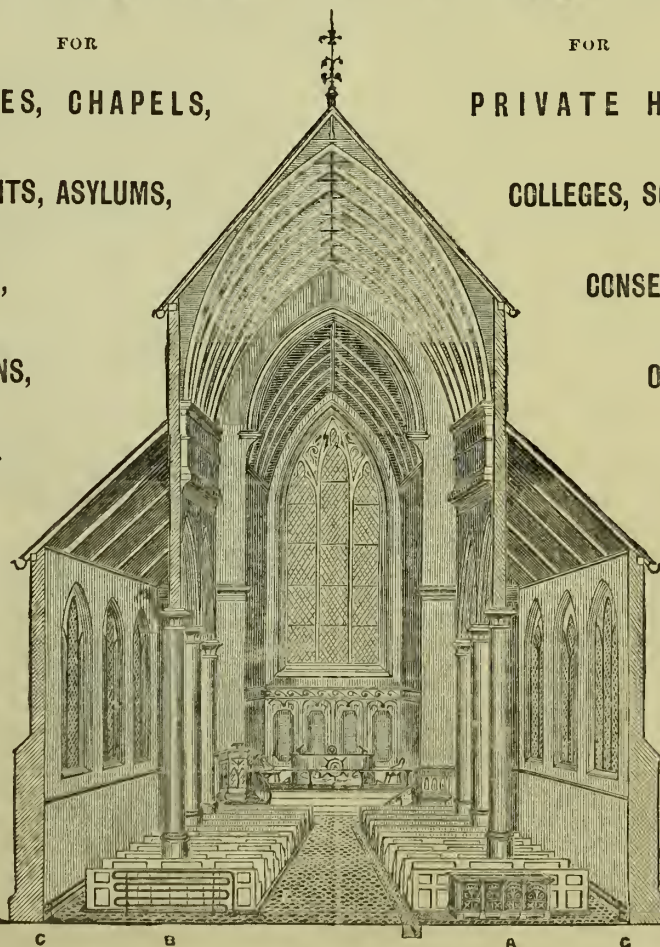
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## NEW FURNITURE WAREHOUSE, HENRY-STREET.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—With reference to your article in IRISH BUILDER of the 15th inst. on Messrs. Brunton and Co.'s new furniture warehouse, 43 Henry-street, I beg to state that it is from my design and internal construction the works have been executed.

J. LESLIE O'HANLON, Jun., Architect.  
Delbrook, Dundrum,  
October 25th, 1879.

## REVIVING TRADE.

THERE are signs of a marked and gradually improving state of trade in several branches of manufacture in Great Britain, although the agricultural interests are still, to a great extent, depressed. American prosperity has been shown for some months past in the large importations of bread stuffs which have been made for the benefit of the British Islands, and this growing prosperity of the States and of Canada is now resulting in these countries sending large orders for iron, steel, and other productions. The shipments for America and other foreign countries are fastly increasing within the last couple of months. In the iron producing districts of the sister kingdom furnaces and forges are once more put in active operation, and works and mines that have been closed for several months, and, in some instances, for a few years, have been opened, and hundreds of workmen employed. With the increasing prosperity of the mineral industries, the building trades, and the farming interests must benefit; and it may be safely anticipated that by next spring and summer many and various branches of trades will evidence their former briskness. No doubt the coming winter may prove a hard one to a number of small producers and workmen, but still there will be an assurance that the worst is passing, and that trade improvement is setting in. We are not advocates for a wholesale system of emigration as a remedy, even at the worst of time, though it is certain that many might benefit, particularly the young and stroug, by emigration. Public works, wisely directed, in Ireland, would afford much relief in the provincial districts during the coming winter and spring, as the working population of this country will not soon experience the effects of reviving trade as the sister kingdoms, which are large manufacturing ones. The interests of the towns in the land question, and *vice versa* when rightly viewed, are reciprocal, and we hope that large estate owners, and wealthy manufacturers alike, will put party, religious, and political interests aside, and unite in doing what they can for the employment of the people.

## ST. JOHN'S R. C. CATHEDRAL, LIMERICK.

THE works in connection with the new tower and spire are now progressing satisfactorily by day's work, under the immediate superintendence of the architects, Messrs. M. and S. Hennessy, and the clerk of works, Mr. Thomas Byrne. We have learned the following particulars relative to the recent disputes. In consequence of some stones being condemned absolutely, and others requiring change, the contractor and architects and clerk of works did not proceed amicably, and as the works were not advancing with the speed required (from causes not necessary to allude to here), the Rev. James McCoy, Adm., gave ten days' notice, according to contract, to take possession if more men were not engaged. During this time meetings of the amalgamated trades were held to condemn the course then being taken, demanding the dismissal of those superintending, and threatening violence to those who should interfere. Accordingly, when the term expired, it was resolved to take possession, and Mr. J. M'D. Bermingham, surveyor, Dublin, was engaged to make a

valuation of all work, material and plant, when works were taken over. The Rev. J. McCoy, apprehending rioting, a large body of police were brought to the scene, and he then demanded possession, which was refused. He thereupon passed through the cathedral by a side door to enclosed yard and open gates, and ordered out the contractor's men; the police entering to preserve order if necessary; men were then engaged, and work proceeded with. Several hundred visited the ground for some days, and small skirmishes occurred in town between men, but subsequently they came and requested employment, which was readily given. It is undesirable that the architects or clerk of works should be open to intimidation from bodies of men for the proper discharge of their duty; and in this case those officers were well supported by the bishop and administrator.

## NEW BOOKS.

*The Art of Letter Painting.*—Messrs. Crosby Lockwood and Co. have issued, as No. 205 of "Weale's Series," a small work on the above subject, giving the experiences of a practical letterer. With the aid of well-engraved plates, the author makes public the system on which he works, hoping that it will prove a safe and sure guide to young beginners. The book is written in the simplest form of language, and on this score it is to be commended, being suited for the humblest lad. A shilling will purchase it.

Messrs. Crosby Lockwood and Co. will shortly publish treatises on "The Construction of Large Tunnel Shafts," "Aid to Survey Practice," and a "Handbook of Electroplating."

Messrs. Longman announce "Six Lectures on Physical Geography," by Prof. Haughton, and "Tracts of the late James McCollagh, F.T.C.," "Text Books of Science: Astronomy," by Prof. R. T. Ball.

## NOTES OF WORKS.

On Friday last the new church at Rattoo, County Kerry, was consecrated by the Lord Bishop of the diocese. It is in the Gothic style, and has been erected, from designs by Mr. J. F. Fuller, by Mr. A. Crosbie, builder, Tralee. The cost has been defrayed by Wilson Gun, Esq., D.L., and Mrs. Gun.

The footways of the Drumcondra township are, we learn, at present being laid by the Mineral Rock Asphalt Company with their excellent paving material. The Corporation also have entered into a contract with the same company for paving Upper Gardiner and other streets within the city in same manner.

The first stone has been laid of a new church for the parish of Durrow, in diocese of Meath. Mr. J. F. Fuller, is the architect, and Mr. Henry Sharpe, Kells, the builder. The noble proprietor of Durrow Abbey, the Hon. Otway Toler, wisely resolved to erect an entirely new building, instead of (as was suggested) "restoring" the old fabric, which was inconveniently situated.

The trustees of Maynooth College have decided on rebuilding the portion of the edifice burned down on the 1st of November last year, and have appointed Mr. Hague, architect, Westland-row, to carry out these and other works of improvement in the college, at a cost of about £9,000. Messrs. Hammond and Co., of Drogheda and Dublin, are contractors for these works, as well as for the beautiful college church, now nearly completed, at a cost of about £30,000.

## HOME AND FOREIGN NOTES.

Messrs. Brady and Thornborough, Manchester (whose advertisement will be found in another column), have just fixed their improved wood shutters on the extensive concerns of Messrs. Boland, Capel-street, and also to four new shop fronts in Talbot-street. Mr. F. Morley architect; Mr. Meighan, builder. From personal observation of their working we believe these shutters will give satisfaction.

**ROTTEN HOUSES IN THE CITY.** Shortly after the clearing of the foundations of the house No. 110 Grafton-street, and when some portions of the new work at basement had been completed, the adjoining house, in occupation of Mr. Brunker, jeweller, collapsed with a terrific crash, portion of the debris falling into the street, where it remained an undue length of time. As to the question of liability for damages we will express no opinion at present. Mr. Brunker, however, was held responsible for obstructing the thoroughfare, and after summons, was mulcted in a fine of 10s. and 3s. costs. The ruins, we are told, have been photographed, and have also been inspected by most eminent architects and engineers.

## TO CORRESPONDENTS.

**THE LATE SANITARY COMMISSION.**—In our present issue we continue our summary of the chief evidence given in the concluding days of the Commission. Until the Commissioners issue their report, we deem it unnecessary to offer any further remarks than those already made. The Commission on the whole was impartially conducted, and quite exhaustive enough to satisfy both parties interested.

**THE "FINDS" AT DUNDROO.**—Correspondents who have written to us on this subject will find the matter alluded to in present issue, with some communications thereon. F. E. (Brunswick-street)—You are quite right. The "Notes" have been cleverly manipulated from our columns by, we presume, a penny-a-liner. He will not probably offend so barefacedly in future, and therefore we refrain from acting on your suggestion of communicating with the proprietors of the Journal.

**SEC. R.I.B.A.—Received.**—Thanks

R. E.—We should have received your letter in the first instance. It is not of sufficient importance now to entitle it to reproduction.

J. B. C. and H. F.—The same answer applies, as your communications have been sent in the mean time elsewhere.

**AN ARCHITECT.**—We have heard there will be a session or some meetings during the ensuing winter, but we are not certain.

P. L. G. (North Circular road).—Leave a sample of the mortar at the offices, City Hall. Specify the buildings where used, and insist upon an answer, if action will be taken. Dr. Cameron, we dare say, will be able to tell the constituents of the filthy compost, and the Town Clerk or Borough Engineer will no doubt give you a civil answer as to whether they are empowered to proceed against the offenders.

**RECEIVED.**—W. C. R. H.—An Artisan (yes)—C. E. (shall be attended to)—M. P.—J. R. M.—T. C. D.—R. D. S. (thanks)—G. R.—A. F.—W. Eassie, C. E. (thanks—o) late for this issue.)

**MESSRS. EARLEY AND POWELLS** beg to announce that Messrs. John Hardman and Co., of No. 1, Upper Camden-street, have resigned the business of Artists, Sculptors, Church Painters, and Metal Workers, in their favour.

Earley and Powells have added to the above mentioned business the Painting and Staining of Windows for ecclesiastical and domestic buildings, under the management of Mr. Henry Powell, who conducted the Stained Glass Department of J. H. and Co., Birmingham for many years.

Mr. Thomas Earley is the only Church Decorator living who was taught his profession by the late A. Welby Pugin.

E. and P. being thoroughly practical men in each Department, are enabled to supply real artistic work at a moderate cost. They, therefore, respectfully solicit the patronage of the Clergy and Gentry of Ireland.

CAMDEN-STREET WORKS, DUBLIN.

## DYNAMITE.

**HAVING** been appointed Agent for the sale of DYNAMITE, in the Province of Leinster, by Nobel's Explosives Company, I am now prepared to execute orders, with a day's notice, out of Stock in Magazine at Dundrum. I also hold a supply of DETONATORS and FUSE suitable for same. The demand for this Safety Explosive in the mining and quarrying districts of Great Britain and Ireland is rapidly increasing. Pamphlets, prices, and all information can be had on application to

SAMUEL BOYD,

46 MARY-STREET, DUBLIN.

## IMPERISHABLE TESSELATED PAVEMENTS.

—H. SIETHORPE AND SON, Agents to Maw and Co., are prepared to supply Designs for Floors of Churches, Conservatories, Entrance Halls, and Passages, with proper Workmen to lay them in any part of Ireland.

Various specimens may be seen at their Warerooms, 11 and 12, CORK-HILL, DUBLIN.

## POOLEY'S PATENT WEIGHING MACHINES.

—These Machines are used upon the principal railways of Great Britain, and are unrivalled for accuracy. Specimens may be seen, and every information obtained from H. SIETHORPE AND SON, 11 & 12, CORK HILL, DUBLIN.

## UNION PLATE GLASS COMPANY.

The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.

H. SIETHORPE AND SON, Agents for Ireland, 11 AND 12, CORK-HILL, DUBLIN.

## HYDRAULIC Engineering, Plumbing, and

Gasfitting.—We are extensively engaged as Sanitary Engineers, and guarantee that the details of work will be scientifically carried out under personal and efficient supervision. Estimates free. BROOKS, THOMAS, & CO., SACKVILLE-PLACE, DUBLIN.

**S. SHEPPARD** has in Stock a Great Variety of MARBLE CHIMNEY PIECES of the Finest Workmanship. MONUMENTS, CHESTS, and every description of ORNAMENTAL WORK executed in Marble.

72 BLESSINGTON STREET, late of OXFORD QUAY.



Illustrations.

THE BRUNSWICK "BASCULE."  
BLOODY BRIDGE.  
RICHMOND GATE.  
THE ROSE AND THE LILY IN HISTORY AND  
HERALDRY.  
(SUPPLEMENTAL SHEET.)


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THE IRISH BUILDER.

VOL. XXI.—No. 478.

ANENT  
ARCHITECTURAL COMPETITIONS.

HE vexed question of Architectural Competition has again been re-opened (if, indeed, it has ever been closed) by a circular which has been addressed by one of the Fellows of the Institute of British Architects to his brethren. Mr. Porter (whose letter we print elsewhere) and who descants on the evils of the competition system generally, and intimates his intention during the forthcoming session of the Institute of taking action in the matter, if he can succeed in obtaining the support of the general body. That he will obtain a degree of support is certain; but we fear that there will not be a general desire evidenced on the part of the profession to forego the system, fraught as it is with many abuses and evils—evils which are yearly extending, and leading to much ill-feeling and demoralisation.

Competition, rightly viewed and carried out, has a good side, and is defensible; but for several years back it has degenerated into a downright and intolerable evil, and we look in vain for any improvement so long as architects are found ready and willing to risk their time and expend their abilities on the chance of winning what in many cases is merely a paltry premium, and which, in the case of the selected, is generally merged in the commission. Modern architectural competition is somewhat older than some people imagine, and when architects of ability were few, the population of cities and towns small, and the building industry chiefly confined to domestic dwellings, and in the hands of builders and contractors, architectural competition had a different aspect to what it has to-day. In the eighteenth and early part of

the present century we had, of course, no such multiplicity of public boards and bodies as we now have. Corporations built town-halls, and ecclesiastical bodies or committees built churches and parish schools; but now we have numerous building bodies besides the municipal ones—town commissioners, vestries, and (poor-law or guardian boards, and several more. A local and jilliberal spirit has grown with the growth of most of our local boards; and open competition, whether it relates to a vestry clerk, a medical officer, a collector, or the selection of an architect, is conducted on the same principles. Selection is a foregone matter with such bodies; advertisements or invitations to compete, a fraud; and open competition—architectural or otherwise—generally a sham. We do not blame local boards for selecting local men, if their abilities qualify them for their appointments; but our experience of late years warrants us in saying we have little or no faith in the public spirit and independence of the majority of members comprising local boards and other public bodies. Some years ago, and still, we fear, our architects personally touted or solicited committees, or the leading men on them, for the purpose of securing work and ousting a brother architect, on the principle, we suppose, in some instances, that "the early bird gets the early worm," but the bird was also in some instances a bird of promise, and went on the give-and-take principle, for the purpose of securing his prize. Next came the open competition system, in which it was fondly believed the anonymous competitor was safeguarded, and that public bodies and clients were likely to obtain the best available talent. In the case of large works, the open competition system in its early stages was advantageous to architects and clients, because all the conditions then exacted were not of the unjust character that they have now become; the premiums advertised by public bodies were paid to three or more of the competitors, and in no case were they merged in the architect's commission. While open competition was more or less a novelty or new, the few architects of ability who practised among the host of so-called ones or mere builders had an opportunity of distinguishing themselves; for, though the chief prize could only be gained by one, yet from three to six others were, in some instances, awarded lesser prizes and had their drawings exhibited in the town-halls, if their designs happened to be for the building of new ones.

As far back as 1769 we had an instance of open competition by English and Irish architects of a most commendable character, and which was, and is still, well worthy of imitation by present-day public bodies or committees. A committee of Dublin merchants advertised both in England and Ireland for plans for a Royal Exchange (the present City Hall), and with much public spirit they offered a number of premiums. There were sixty-nine competitors, and in the list of the architects' names which is before us there are some whose names are veiled by initials or *nom de plume*. There were six of the competitors whose plans were marked as the best by the trustees, and the authors of the three premiated designs were—Thomas Cooley, James Gandon, and Thomas Sandby. The first architect was awarded £100, the second £50, and the third £40. The best designs appear to have been sent in by

English architects; but Thomas Cooley and James Gandon adopted Dublin as their home, and practised here during the remainder of their career. Indeed James Gandon became, *par excellence*, the best Irish practising architect of his time. Cooley died young, but not before he gave evidence of distinguished ability in his profession, as his Dublin works show to this day. Now our Dublin merchants or building committee did not stop at merely awarding the above three money prizes, but presented several other of the competitors, English and Irish, whose designs were meritorious, pieces of plate. Here was a modern architectural competition 110 years ago, which is worthy of notice, for there was honesty, public spirit, and no tinge of selfish localism or illiberality connected with it. If present-day competitors were conducted on the same or somewhat similar lines, the system would be useful and worth preserving, instead of the veriest Dead Sea Fruit.

In London, as well as in Dublin, at the present time, there are many gudgeons willing to be caught with the bait daily thrown to them. The chance of winning a prize is to many young practitioners worth risking—worth losing their time and expending their spare cash (if, indeed, they have any to spare) in preparing a series of elaborate drawings, for many of our present civil and ecclesiastical building committees will not be content with mere sketches. The work is done at last in fever and excitement; the designs are sent in, and then comes the killing suspense to be succeeded with what is viewed as an act of savage cruelty. The decision is questioned, hints and innuendo are followed by open accusations, culminating in a spring-tide of indignation, on the ebbing of which there is much sadness if not bitterness. London is a large city—it is a sort of continent rather; and without doubt there are many architects in it without commissions, as there are barristers without briefs and doctors without patients. Dublin, compared with London, is small, and in the present season, as in other past seasons, there are young architects living in it who are experiencing "hard lines," and some of them wishing perhaps that they had never become architects. To create an *esprit de corps* with such material would be most difficult, if not impossible; and to keep such a class of practitioners from rushing into a public competition, wherever the slightest chance of succeeding existed, would be equally impossible. They have this excuse also,—what they see their elder and more well-to-do brethren doing, are they not entitled to do? If the architect who has a few good commissions on hand is anxious to grab at more, big and little, he is not in a position of preaching restraint to struggling aspirants, or advocating that *esprit de corps*, which his own action belies.

The Royal Institute of British Architects might succeed in getting a number of its leading members to desist from entering into open competitions as now conducted, but it would not be easy to forecast the result. If leading and well-to-do architects refused to compete, those requiring designs for very large and important undertakings might content themselves in inviting a limited number; but be it observed it would then be with the clear understanding of remuneration all round, the non-successful receiving a fixed or equal premium, for awards on a



graduated scale, according to the merit of the design, might lead to invidious comparisons, and might not be altogether advisable in a limited competition, confined to a number of the leading architects. There are two other parties besides the leading architects, who are entitled to be heard on the question of open and limited competitions—the younger and less distinguished members of the profession and the outside public—the individually representative or the corporative requiring the services of architects. As the younger and scarcely known members of the profession would not be selected by public bodies or individual clients in a limited competition, their only chances for a while would be through open competition, until they otherwise, by perseverance or through accidental good fortune, built up a name and reputation. Want of commissions or clients to young architects is pretty much the same as want of employment to artisans, unless indeed the young architect's family and relatives are able to assist while he is establishing a practice.

The subject of architectural competition is a wide one, and has more than one side issue, and the question has need to be approached and discussed with calmness and wisdom. It has its advantages for the younger members of the profession, though to young and old, as at present conducted, it is fraught with much mischief. An improvement of the system is possible, though we fear its abolition is far distant. The improvement will consist in certain conditions being agreed to before any architect competes,—a limit in respect to working drawings and details, and a fair remuneration when complete drawings are required. The members of architectural institutes or bodies in each of the three kingdoms could agree with respect to these and some few other minor matters. In respect also to the design selected, it should be insisted upon that the premium paid or intended to be paid to the architect should not merge in his commission, but be paid over to him at once or as soon as the works were commenced. The premium should be considered as a simple and fair remuneration to the architect for the time and labour expended in the preparation of the drawings. In large and publicly important works, whether governmental or outside, the committees and promoters of competitions should, as a matter of plain sailing and fair dealing, agree to refer matters to a properly constituted jury, from whose decision there should be no appeal. A professional adviser if called in would, in case of many competitions, give satisfaction, and save much bitterness of feeling and the suspicion of unfair play (not always an unjust suspicion) connected with many of our latter-day competitions.

We have not said all we might say in respect to our subject, nor have we cared to discuss, at least at present, the postscript matter of the circular that gave rise to our article. Perhaps our Irish Institute, *pari passu* with the Royal Institute of British Architects, will as soon as possible discuss once more the vexed question of architectural competition, and say how far they are prepared to act honestly in harness with their professional brethren in the sister kingdoms.

APPOINTMENT.—The Guardians of the Cork Union have appointed Mr. M. J. M'Mullen, B.E., South Mall, Cork, as their architect and engineer.

## THE LIFFEY AND DUBLIN HARBOUR— PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.

### FOURTH PAPER.

In 1785-6 the conservancy of the port was, by an act of the Irish Parliament, transferred from the Dublin Corporation to a special board, the new body being termed "The Corporation for Preserving and Improving the Port of Dublin." It will be remembered that in our first paper we stated that the work of replacing the second length of the original timber piling or jetty of frames eastward of the Pigeon House by a double line of rubble retaining walls, was commenced in 1761, and that the first step in the operation was the construction of the present Poolbeg Lighthouse. The lighthouse was finished successfully about 1768, but the work of the second length of the South Wall proceeded slowly. The sand from the South Bull began to fill up the navigable channel, through breaches in the piling where the timber had decayed. The delay that was occasioned in effecting any material improvement of the harbour by the Corporation of the city at this time caused general dissatisfaction, and led to the formation of the new conservancy body, as described, in 1786. Under the direction of the new board, known otherwise down to the present time as the Ballast Office, the great South Wall was finished in 1796, and a small harbour or basin was made at the Pigeon House, to shelter vessels in easterly waves.

*Re the completion of the Poolbeg Lighthouse, the following appears in Ezshaw's Magazine for 1767:—"Mon. 13 [June] was laid the last coping stone of the new lighthouse at the extreme point of the south poles in Poolbeg; this is a work of the highest utility, tending to the prosperity and increase of Commerce, and to the preservation of her hardy sons, who lead her through every clime; less we should not do for them who in ease enjoy the sweets of their adventurous undertakings. This pile of building is a lasting testimony of the ability, no less design, than execution of the undertaker, Mr. John Smith."*

Further on in the same print occurs this remark:—"This work, the commencement of which we have already mentioned, was lighted up the 29th of September, 1767. Its use is evident to those who are acquainted with the danger of the harbour of Dublin; the undertaker and projector is the ingenious Mr. Smith, whose ability in design and integrity in execution does him great honour; and could we be equally successful in other public works in the kingdom, particularly our navigation, they should not be so sarcastically dealt with as they are by strangers that come amongst us, but with how much equity let these works declare."

The records of the wrecks that occurred near where the lighthouse stands are many. Early in this same year 1767, and before the lighthouse was lit up for the first time, we have the following record from the authority just quoted:—"The brig Henry, Captain Rathburn, from London, was forced on the south side of the piles in Poolbeg. Of her crew, which consisted of thirteen, only three were brought off alive, as the others were carried away by the violence of the sea or perished through the inclemency of the weather."

Speaking of the rather irregular and uncommon procedure adopted of commencing

the erection of the lighthouse at the extreme end of the intended wall, Mr. Griffith observes:—"The unusual course of beginning a work of the kind at its extreme and most exposed point was adopted with a view of as soon as possible replacing the floating light, which was frequently displaced in stormy weather, by a permanent and efficient lighthouse, and of affording protection to the new wall while in course of construction." And we quite agree with the author in the following sentence:—"Taking into consideration the date at which it was undertaken, and the appliances then available, this work must be acknowledged as a remarkable feat of marine engineering." The completion of the great South Wall from Ringsend to the lighthouse was without doubt a great improvement. A comparison of the soundings taken by order of the Corporation in 1711, by Captains Burgh and Perry in 1725, and by Captain Bligh in 1800, indicates, in the opinion of Mr. Griffith, that the completion of this work at an expenditure of £200,000 had attained, in a great measure, the objects for which it was designed, inasmuch as the channel from Poolbeg to the city was more sheltered, and also somewhat straighter and deeper, than before the construction of the pier. It has often been alleged that the great South Wall has only been partially successful in failing to produce an increased depth of water to seaward on the Dublin bar; but Mr. Griffith holds that it is only just to those who designed the work spoken of to state that no such object was aimed at. He puts the matter thus:—"Previous to the construction of the wall, the bar formed no material obstacle to vessels frequenting the port, seeing that, with one or two exceptions, there was shallower water in the channel up to the city than on the bar. As soon, however, as the wall was finished, the sweep of the tide round the lighthouse produced deeper water in the neighbourhood of Poolbeg than farther out to sea. This naturally drew attention to the bar, and gave rise to the belief in some minds that a bar was forming across the entrance, while in reality no reduction in depth had taken place. The author's [Mr. Griffith's] wish is thus alluding to the bar is to remove any impression that its formation is due to deposit brought down by the rivers. Dublin bar is simply a submerged beach forming the connecting link between the North and South Bulls."

Before we come to the several plans next proposed for improvement of the harbour of Dublin by different engineers, and to that finally taken shape and completed at the hands of the Ballast Board—the great North or Bull Wall,—we will take note of a few more archæological matters.

The following account of Dublin harbour (according to Bishop Percy, as noted by him in the MS.) was written by a member of the Egerton family, and taken from "Travels in Ireland in 1635":—"Wee come to the cittie of Dublin July 9th, 10 houre . . . . This cittie of Dublin is seated upon the river Liffie, which is not navigable above the bridge [the "old bridge," we suppose]. The river is noe good channell, butt full of shelves and sands; and here is a very vile barred haven, over which few shippes can pass that carry 400 tuns or thereabouts. The harbour here is very naked, playne, and the least shelter and protection from storms that I have found in any haven. The most shippes ride by the sea, butt itt is soe low as itt is



very poore and bare shelter, and little defence against the violence of the stormes, soe as the King's shippe, which lyes here to scoure the coastes, is constrained to remove for harbour, sometimes under the head of Howaed [Howth], sometimes under the opposite shoare." A very poor haven or harbour indeed must have been that of Dublin two centuries and a-half ago; but it certainly did not improve until the works in the early part of the eighteenth century, as before described, took place.

In Gerard Boate's "Natural History of Ireland," published in London in 1652, we have a notice of the harbour of Dublin, which is worthy of note, as Boate was to the extent of his knowledge a conscientious and accurate writer, and a very shrewd and observant one too. Here are Boate's remarks:—

"Dublin haven hath a bar in the mouth, upon which at high flood and spring tide there is fifteen and eighteen feet of water, but at the ebbe and neape tides but six. With an ordinary tide you cannot go to the key of Dublin with a ship that draws seven feet of water, but with a spring tide you may go up with ships that draw seven and eight feet. Those that go deeper cannot nearer to Dublin than Rings-end, a place three miles from the bar and one from Dublin. This haven almost all over falleth dry with the ebbe, as well below Rings-end as above it, so as you may go dry-foot round about the ships which lye at an anchor there, except in two places, one at the north side, half way betwixt Dublin and the bar, and the other at the south side not far from it. In these two little creeks (whereof one is called the pool of Clantarf and the other Poolebeg) it never falleth dry, but the ships which ride at an anchor remain ever afloat, because at low water you have nine or ten feet of water there. This haven, besides its shallowness, hath yet another great incomodity, that the ships have hardly any shelter there from any winds, not only such as come out of the sea, but also those which come off the land, especially out of the south-west, so as with a great south-west storm the ships run great hazard to be carried away from their anchors and driven into the sea, which more than once had come to pass, and particularly in the beginning of November, anno 1637, when in one night ten or twelve harks had that misfortune befall'n them, of the most part whereof never no news hath been heard since."

Doubtless English and foreign importers and seafaring men during the seventeenth and early part of the eighteenth century were well aware of the danger of making for Dublin harbour, and the trade of Dublin suffered accordingly by other ports being preferred for trading to.

It will not be amiss at this point to say something anent the derivations of "Rings-end" and the "Pigeon House," of which some strange explanations are given in various channels. According to many old citizens—and the story has been told to the present writer in his youth by some of them—the name of "Ringsend" was derived from many scores of rings of prodigious size fastened originally in beams of wood protruding from this neck of land, other rings made fast in large rocks brought for that purpose, the bottom being too soft for anchorage for ships, the first place of security being met with after entering the harbour being formerly Ringsend. This story is to some extent still current among the people. In Lewis's "Dublin Guide" for the year 1787 we meet with the following remarks:—"Rings-end, Lord Chesterfield observed on his first arrival in the bay of Dublin [1745], is a Bull near the North Bull. His lordship knew not the derivation of the word. The Bull, or blunder, is not in the name, but in the perversion of it. The true name is *Rin-Aun*, which signifies the point of the tide—a name very descriptive of the situation of the place [then]. In process of time, however, when the language was almost forgot, the

name was still preserved, but corrupted and Anglicised, and *Rin-Aun* by an easy change was made Ringsend. For this remark I am indebted to Dr. O'Halloran, of Limerick [Sylvester O'Halloran, author of a History of Ireland], whose letters to me on my publications in Ireland are before me. Ringsend was greatly frequented some years ago, but it is now in a melancholy situation. It appears like a town that has experienced the calamities of war, that has been sacked by an enemy, and felt the depredations of all-conquering Time," &c.

The improvement of the harbour, and Ringsend ceasing to be the place of landing for passengers and merchandise, led to its decay. The witty Dr. Maginn says in one of his works that Ringsend is a corruption of *Wring Sand*. Joyce, in his "Origin and History of Irish Names and Places" (1869), shows that the word *Rinn* means a point of anything; and after giving several examples of the application to different places in Ireland, observes:—"I think it is very probable that the point of land between the mouth of the River Dodder and the sea gave the name to Ringsend, near Dublin, the second syllable being English: Ringsend, i.e., the end of the *Rinn* or point. The word *Rinn* is connected with numerous spots or necks of land in Ireland, and it is not unlikely that Ringsend is derived from the Irish word.

The derivation of "Pigeon House" has given rise to more than one strange conjecture, and it has been made the foundation and scene of a somewhat thrilling story by T. E. (the late Mr. Thomas Ettingsall) in the second volume of the *Dublin Penny Journal*, 1833. When the second length of wall was commenced from the Pigeon House to where the lighthouse stands, we are told, what was most likely, that poles were sunk for the undertaking, and a wooden house, strongly framed with iron, to serve as a watch house, store house, and place of refuge for any that might be forced through stress of weather. Mr. Ettingsall gives the name of Pigeon to the man who lived in this large wooden house, and who had the care of the workmen's tools and works. During the time operations were going on, the word on Sunday was, "Where shall we go?" "To the pole ends to take our dinner in Pigeon's house." Pigeon is described as a married man, having a son and two daughters, and, finding that his house and the pole ends was becoming a great resort in summer for the Sunday and holiday folk, spared no expense to make it neat for their reception by providing creature comforts in food and drink, and also boats which himself and his son rowed. The reader interested in the further history of Pigeon and his family must consult Mr. Ettingsall's story, it being sufficient for our purpose to touch upon his introduction, which contains some facts. Mr. Ettingsall holds that it was from this man that the Pigeon House took its name, though some, he says, will have it that from a battery that was afterwards built of a rectangular form with loop holes, which to all appearance represented at a distant view a pigeon house, such as we see in some of our farmyards elevated on poles. Again, he says, others affirm that from carrier pigeons resting here it took its name, but that the old inhabitants of Dublin and Ringsend contend for the first.

Whatever we may think of Mr. Ettingsall's story of the "Pigeon House," the opening words of his sketch are to the point, for he

spoke as one whose own memory extended back for many years. He writes:—"The improvements made in the harbour of Dublin within the last sixty years (or thereabouts) cannot fail to fill the beholder with admiration. Every way the eye turns the taste and spirit of our fellow-citizens are displayed—beauty is combined with utility. The feeble citizen of fourscore, as he saunters along the quay of the north and south walls, recalls to his memory that in his boyhood those beautiful walks which he now enjoys were swampy, impassable strands—that from Ballybough to Ball's Bridge and from Mark's Church to Ringsend were under the dominion of the waves of the Atlantic. Ringsend might then be deemed an island, for before the Dodder river was enclosed by banks the sea rolled over where rich pastures now relieve the eye in the vicinity of Irishtown, though it is to be regretted that of all places round the harbour Ringsend is the least improved—it is in fact disgusting in appearance, while some of its ruinous buildings seem to threaten destruction to the unwary passenger."

It will be seen from what we have already stated that Ringsend grew more and more decayed from 1787 till 1833, and that no improvement in the old locality took place since, except on the borders of Irishtown. The craft of ship-building before the Union promised well for Ringsend and Sir John Rogerson's-quay, and some respectable vessels were built and launched at both places; but alas! though the port and harbour have been greatly improved within the present century, ship-building has been a long-decayed local industry on the banks of the Liffey.

#### THE GOUGH STATUE.

NOTWITHSTANDING that the Corporation at last offered a good site for the erection of the statue (in Upper Sackville-street), the Gough Committee have passed at their last meeting a resolution which, if carried out, will transfer the statue to the Phoenix Park, instead of adding it to the number of statues (still small in number) which adorn the city. The dispute from first to last anent a site, between the Gough Committee and the Corporation, has been an unseemly, if not a reprehensible one. We were at first disposed to throw the blame upon the Corporation, and no doubt they were to blame, to some extent, in not having been more agreeable and decisive; but we now consider that they have made amends in the site they have granted in Sackville-street, which is quite as good, if not better, than the before-canvassed sites of Foster-place (College-green), or Westmoreland-street. Indeed it is preferable to the Phoenix Park. A site in St. Stephen's-green, opposite to York-street, had been suggested, too, and, though to some extent suitable and more so than the Phoenix Park, which is a distance outside the immediate city, still, on the whole, we are inclined to think that Upper Sackville-street is as good a site as could be chosen. Before passing their resolution the Lord Mayor, who presided at the meeting of the Gough Committee, said that the Corporation were most anxious to give a good site for the statue, and unanimously agreed to that in Upper Sackville-street, where the full beauty of it would be seen in the centre of this great thoroughfare of the city, leading to a suburb which was daily increasing in extent and population. His lordship urged upon the committee to accept the site as a settlement of this very vexed question, pointing out that the grant of the Government was given provided that the committee, on final consideration, preferred the proposed site to any other which might be offered to them, and that the Government would now



easily understand the reason why the committee changed their mind if they now rescinded the former resolution and decided on the site offered by the Corporation.

The Gough Committee, however, passed the following resolution:—

"That the site in the Phoenix Park asked for from the Government for the Gough memorial statue having been granted, and appearing to be the most desirable, and the contractor for erecting the statue being in possession thereof, the committee cannot accept any other site, and consider the one now offered by the Corporation of Dublin as unsuitable in an artistic point of view."

#### THE NEW BUILDING BYE-LAWS FOR DUBLIN.

We recently noticed the nature and scope of the Building Bye-Laws prepared under the auspices of the Corporation or a committee thereof, and expressed a hope that before their confirmation certain modifications and improvements would be made therein. On the whole these Bye-Laws are framed on the proper lines, but they are defective in matters of detail, and, as we stated before, they would bear to be considerably shortened, by absorbing some in others, without impairing their efficiency. They are stringent, as they should be, for nothing less than severity will put a stop to nefarious building malpractices, now growing quite common in the several directions. Objections have been raised that some of these building regulations, if enforced, would be found prohibitory of a certain class of useful buildings. There are certain classes of buildings which every honest architect and citizen would like to see wiped out of existence. To cheapness we have no objection if certain conditions are fulfilled in making dwellings healthy and comfortable, and if proper materials are used, and not mere rubbish. As far as the new Bye-Laws are prohibitory of that class of dwellings understood as "Jerry" houses, the materials of which are not only vile, but the workmanship throughout is "scamped," the Bye-Laws are not a bit too stringent. Bad building, whether carried out by individual speculators or by companies under the pretence of supplying a public want, have need for the closest supervision. If it be found at the same time, on a careful consideration, that any of the Bye-Laws are likely to press unduly on honest building speculators, and where a desire exists to do what is proper in meeting the sanitary requirements of the case, by all means before the Bye-Laws are confirmed let modifications be made, so that no legitimate building industry or builder in the practice of his business may be injured.

These Building Bye-Laws of the Corporation were, we understand, drawn up by the City Engineer—at least they are credited to him,—and we are not aware that any architect of the Irish Institute, or even the City Architect, has been consulted in their preparation. If such be the fact, it accounts for some obvious defects in details which should be remedied before the Bye-Laws are confirmed. Every corporation or public body that has an architect as one of their officers, consults him on building matters, as they would their legal adviser on law business. The Corporation has its "City Architect," and one would suppose that that professional gentleman would be consulted in the framing of these Bye-Laws, if no experienced architect outside was asked for his advice. The facts ought to be publicly known.

Though these Dublin Bye-Laws in their general features are the same as those of the Metropolitan Board of Works, London, and of other previously-framed bye-laws in force in other cities and towns, yet the circumstances of Dublin called for discrimination as regards details. The opinion, therefore, of Dublin practising architects of long experience, or even of an old-established and respectable builder, would not be amiss in some cases. While granting that the Bye-Laws, as a whole, are conceived in the proper spirit, and, if carried out, will undoubtedly

lead to a desirable reform, still we trust that they will be subjected to a final and efficient revision before they are confirmed. One word more, which cannot be too often repeated—The value and virtue of these Building Bye-Laws will consist, when passed, in their rigid enforcement within the city boundary.

#### "COMPETITIONS" AND THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE following letter (elsewhere alluded to in our pages) has been addressed to members of the Institute:—

"As the season is approaching when our Institute will again meet for its sessional deliberations, I intend at an opportune moment (if I can rely upon the support of the 'Fellows' generally) to call the attention of the Council to the subject of 'Competitions,' with a view to some practical steps being taken to minimise the evils arising from the competition system as at present practised.

Believing that the Institute is the only body that can with any hope of success deal with this subject, I venture to hope that the time may have arrived when the 'Fellows' (about 350 in number), as the elders of the Institute, will by some dignified act take the initiative, and determine from some given date to refrain from engaging in any open competition (or in any limited competition where a substantial honorarium is not offered to each competitor), and will make it incumbent on every 'Fellow' hereafter elected to sign a declaration that he will not engage in any open competition.

It is not too much to hope that such a course of action would ultimately lead to the discontinuance altogether of the 'competition system,' as committees would hesitate before advertising for designs if they felt sure that not a single 'Fellow' of the Institute would respond to such an appeal, and it is not unlikely that a large proportion of the Associates and the Members of other Architectural Societies would cheerfully follow the example set by the 'Fellows.'

One of the arguments (and it is a powerful one) at present used by those who engage in competitions, to justify their action, is that the 'Fellows' of the Institute have not hitherto discouraged the system, but rather, on the contrary, some of the most distinguished men are still found ready to engage in any competition of importance.

Open competition must be a serious loss to the profession as a body, as it may be taken for granted that few buildings of any importance are now erected without some architect being professionally employed, and consequently the whole expense of competition drawings and the time expended upon them is so much money absolutely thrown away, less the premiums (which are generally small) that may be paid to the successful competitors; and while it is difficult to estimate with any degree of accuracy the cost of competition drawings, it can be no exaggeration to say that very serious sums must have been lost in the several large competitions that have recently engaged the attention of the profession.

Small competitions are even more prejudicial to the well-being of the profession, because the number of competitors is often very numerous and the premiums small, and not unfrequently the payment of the premiums is the end of the matter. I may, as an instance of this, mention the Addiscombe-road Church competition, when seventy-five competitors responded to the invitation, and the work was never carried out, the premium of fifty guineas being the only remuneration paid.

Assuming the modest sum of £10 as the average cost of each set of designs (and it would probably be three times that amount in many cases), the loss to the profession on this competition alone amounted to £700, and such instances are not uncommon, especially in church competitions. It is clear, therefore, that the amount annually lost by the profession through the competition system must be very large.

The total abolition of competitions would, I believe, do at least three things for the profession:—

1. Increase its dignity.
2. Materially improve the financial resources of its members.
3. Materially benefit the position and increase the remuneration paid to the architectural assistants in our offices.

I may at some future time place before you some important statistics relating to competitions; and in the meantime I shall be greatly obliged if you will favour me with any suggestions that may occur to you on the subject to which I have directed your

notice, and specially inform me whether, in competitions where you have been successful in gaining the first premium, the works have been carried into execution with results satisfactory to you, or whether the reverse has been the case.

I should also be glad to know that you sympathise with and support the movement of the 'Fellows' in the action I have indicated, that I may regulate my further action accordingly.

THOMAS PORTER,  
Fellow of the Royal Institute of British Architects."

P.S.—It may be worthy of consideration whether the Institute might not with propriety recognise a commission of 6 per cent. instead of 5 per cent. as a proper professional charge for "Fellows" to make in future on works carried out by them.

#### THE SANITARY COMMISSION.

The Royal Commissioners (Mr. R. Rawlinson, C.B., and Dr. MacCabe) sat on Tuesday in the offices of the Commission, Dublin Castle, to receive evidence from city medical officers. They all corroborated the testimony already given as to tenement houses and the state of the Liffey.

Dr. C. F. Moore did not think the existing tenement houses could ever be rendered sanitary. The authorities could use an open place, such as Newmarket or Clarendon-market for the erection of baths and wash-houses. The poorer classes had no objection to cleanliness.

Dr. Hamilton Labatt (over 40 years a medical officer) said that the tenement houses in his district (South City) were in the most wretched condition—past description, and the overcrowding excessive, although this district was one of the nicest in Dublin. Had been obliged sometimes to call for a candle to see a patient's tongue! He would rather sleep in the dissecting-room of the College of Surgeons than in some of those houses.

Dr. Ferguson (No. 1 North City) considered the tenement houses dangerously overcrowded. He had learnt there were as many as seven persons, children and adults, sleeping in one bed. In parts of his district the houses are new, and the people get colds, &c. by going into them.

Mr. Rawlinson—Did you ever hear the Spanish saying—"The first year for your enemies, the second year for your friends, and the third you may live there yourself"?

Dr. Ferguson—There is a great deal of truth in it.

Dr. J. E. Byrne said he had vaccinated close upon 2,000 persons. He had no complaint to make as to the arrangements for conveying people to hospital, but the man who had the contract kept a dairy, and that he thought was objectionable. He had written to the Public Health Committee on the subject, but they could see nothing to object to.

Dr. John Nowlan, medical officer, No. 1 North City district, gave similar evidence as to drainage, ventilation, and overcrowding in his district.

Dr. J. Kenny said that in No. 2 North City District four-fifths of the houses were let in tenements, occupied by 20,000 people, and their condition could not be worse. The reason of failure in carrying out the Sanitary Act was want of efficient supervision over the medical officers of health. An inspector should be appointed, who would go round the city, and be independent of the Corporation.

Mr. E. D. Gray flatly contradicted evidence given by Dr. J. A. Byrne in respect to the driver of the hospital cab.

Dr. A. Speedy stated that the present mode of inspection of nuisances was open to many objections,—first, insufficient inspection, not only as regarded a want of knowledge of the nature of sanitary defects, but a want of due appreciation of the importance of their removal; second, imperfect supervision of their work. No inspector of nuisances should be allowed to follow any other pursuit.

Some other medical gentlemen, officers of the poor-law guardians, were examined, and the inquiry was adjourned.



## THE DANGERS OF BAD PLUMBING.\*

DURING the Exhibition which was held in Leamington in 1877, I contributed some remarkable specimens of mal-construction in plumbing, and also some curious examples of leaden pipes, into which holes had been gnawed by rats while seeking ingress to a house. I also showed several pieces of sheet lead which had been completely perforated by worms that had previously destroyed the unseasoned roof boarding underneath. During the present Exhibition I have laid upon a table some still more remarkable examples of defective and dangerous plumbing; and I may add that each specimen which I exhibit has been associated with death and with disaster, in some shape or another. In the few remarks which I will now proceed to make, I will endeavour to classify under the heads of Imperfect Jointing and Improper Treatment of Wastes, the sources of some of the evils complained of, so that each specimen may point its moral.

## IMPERFECT JOINTING.

These faults will mostly be found in soil-pipes. For instance, there is the slip-joint, properly so-called, in which one portion of the soil-pipe has simply been dropped into another, without any filling-up material, or solder. A necessary result of this is that the sewer gas escapes at all times into the house, when the soil-pipe has been erected in the interior of the house, in the ordinary wall chases. Even when the soil-pipe had been led outside the house, I have come across notable examples in which the sewer air has escaped from these open joints, and found an entrance into the house by way of the open windows. Cases of death, due to this improper delivery of soil, are very common indeed, and the victims are mostly servants who sleep in attics—the windows of which open above these pipes. Sometimes even when the joints have been properly made with solder, but when the soil-pipes inside the house have been insufficiently tacked to the wall, or insufficiently supported, the weight of the soil-pipe has sufficed—by dragging action—to open the joints, with the usual bad consequences. It is not an uncommon occurrence to lay bare soil-pipe joints which have been made with putty, and tied over with canvas; or red lead joints without the slightest attempt at soldering; and when these joints were dry an open annular seam has appeared, which has allowed an exit for the sewer air. Joints of this description are almost invariably found in the older class of houses, and I have exhibited, on several occasions, pieces of soil-pipe, not more than a couple of feet in length, upon which could be noticed each one of these samples of improper jointing. I need hardly say that faults of this kind are mainly attributable to the carelessness of the workman, who has been content with the worst of patching, instead of insisting upon an entire replacement of the worn-out pipe, as was his duty. I am only too well aware that very often the builder has orders from the owner to carry out the very cheapest repairs; but this ought not to be a valid excuse, because it is neither workmanlike nor businesslike to treat so serious a matter as a soil-pipe in this way; and he ought to know very well that a soil-pipe cannot fulfil its duty properly unless it can sustain a column of water inside, without trickling at the joints. And when the builder observes, upon taking down the casing, that a pipe has become eaten into holes by sewer air, or abnormally thin, he should know that no amount of patching he can devise will remedy the defects, seen and unseen, in such a case.

The corrosion of soil-pipes into holes is almost entirely due to the action of sewer gas, and will always be found present in some portion or another of an old soil-pipe which has never been ventilated. Where disinfectants of certain kinds are freely used, the decay of the lead is greatly accelerated.

When a soil-pipe of this description is laid bare, the safest way is at once to remove it, and to replace it by a drawn lead soil-pipe of proper thickness, duly ventilated by a continuation of the same diameter of pipe up to the roof, remote as possible from windows and chimneys.

There is another thing which a builder has a perfect right to refuse to do, and that is to lead the soil from a water-closet into a rain-water pipe which descends inside the house, or has its extremity near any window. This is a very frequent cause of illness, even when such a rain-water pipe, made to do double duty, is led outside the house, as, for the most part, it will be found that the upper extremity delivers foul air perilously near the inmates. During the past year I have known cases of death traced to this very fault. The evil factor in such improper treatment is multiplied when the pipe has not been made of lead, but only of lengths of thin cast-iron down pipe, which cannot properly be jointed or made air-tight. I say that no responsible builder should ever consent to the erection of such inadequate soil piping, or only upon the specification of an architect or engineer who dare risk it under certain conditions. Nor ought anyone to make use of an iron soil-pipe outside the house, unless it be thoroughly disconnected at the foot, and a current of fresh air thus continuously passed through it.

## IMPROPER DELIVERIES OF WASTES.

A very large percentage of the waste pipes of sinks are led direct into the drain, with only a bell trap inside the room, which is oftener than otherwise broken, or with its upper portion removed for the convenience of passing down, quicker than is needful, the pantry and other sink wastes. As a result of this, and especially in butlers' rooms, where he perforce sleeps, in order to be close to the strong room, a regular highway for foul air is established into the rooms, bringing with it sickness of many kinds. It is the same too often with housekeepers' rooms and servants' halls, in which sinks have been placed, and servants who are often obliged to pass the greater part of the day in such rooms suffer in consequence. The only remedy against this state of things is to cause the sink to deliver over the trapping water of an open gulley outside the house, no matter what distance the pipe may have to go to reach the exterior of the building, and to provide, as well, a trap underneath the sink itself, in order to keep out the cold air and the effluvia arising from the decomposing wastes in the gulley. This latter is a point which is often overlooked.

The above state of things is sufficiently bad, especially in a large household, too profusely equipped with sinks in the basement, but it is perhaps nothing to be compared to the improper entries of housemaids' sinks into soil-pipes or D traps of closets. In nearly every instance when a foul smell is discernible upstairs it will be found to arise from this improper connection between these wastes and the soil system. I am not now speaking of properly-constructed housemaids' sinks, with ventilated traps underneath, which are purposely constructed for the removal of bed-chamber slops of all kinds, because these may be allowed in such cases to enter a properly-ventilated soil-pipe; but I refer rather to sinks merely intended to remove away the drips from hot and cold water taps, in which case the danger is greatly enhanced by the sinks being placed in passages close to bedrooms and in proximity to the great air-shafts formed by the staircases. These kinds of sinks should invariably deliver in the open air, and may sometimes be conveniently and safely led to the upper head of a rain-water pipe.

Another most disgraceful system which obtains in many houses even of very modern construction is the leading of the cistern waste or overflow into the trap of a closet. I have, this year, exhibited some startling examples of this dangerous practice, and I must most earnestly call attention to the

fact that drinking water is contaminated in this way to an extent which must be incredible to anyone who has not made the sanitary inspection of houses his special study. I have come to the conclusion that the wisest way to avoid the dangers consequent upon this improper treatment of a cistern waste, is to treat the latter as an overflow, and point it through the wall in all cases where a standing waste cannot be led to deliver in the open air.

The few remarks which I have made upon the subject of the delivery of housemaids' sinks into the D traps and P traps of closets are equally applicable to the wastes and overflows of baths. An examination of my pilloried specimens will show that this practice is far too common. One can observe there the traps of closets, into one of which have been led the waste of a cistern supplying drinking and closet flushing water, the waste of the housemaid's sink, and the waste and overflow of a bath. As may be observed, there also the wastes of baths, sinks, and cisterns have been taken into both cheeks one D trap. It is bad enough to place the bath in the same room as a closet, and I wonder how architects can persist in this evil association, but it is something horrible to think that the delivery of the bath waste is into the very foulest conduit. And yet this latter mistake is one very constantly practised by plumbers who at least ought to know better, and who ought to feel themselves in a position to refuse to carry out such a practice even if ordered to do so by a clerk of works. I have known instances in which death has entered a household by way of a bath-pipe thus dangerously connected, the danger being enhanced by the frequent contiguity of bathrooms to bedrooms.

Nor can it be said that these errors of judgment, or worse, apply only to old houses, for I exhibit samples of closet-traps, with bath, cistern, and sink entries which are palpably but lately from the plumber's hands. In the majority of the cases the excuse cannot be urged that these mistakes have been perpetrated in order to save money or to scamp the workmanship, because many of these traps are really excellent specimens of skilled labour, and in some of them the wonder is how the painstaking workman could have brought his soldering iron into play at the wiped joints in so small a space. The faults are entirely, in such instances, due to total ignorance of sanitary principles, and to a slavish following out of the traditions of the workshop.

When we come to the water-closet itself we are all bound to admit that there is a great deal still to be done in providing a faultless apparatus. Most horrible examples of death-dealing closets are to be found especially in the area vaults of our best town houses. I should above all like to see abolished the filthy D trap with its furrings of faecal matter, the huge iron container with its linings of ancient ordure, and the trap at the foot of the soil-pipe with its excremental cesspit. I would even like to see abolished all traps whatsoever to closets, and I am convinced that if plumbers will only follow the lead of our more advanced sanitarians in this respect, or at least more largely patronise the earthenware closets, that much solid good and absence from disease would accrue to the community. It is almost criminal for builders still to persist in the use of the pan closet, which, to my knowledge, was condemned by Mr. Chadwick nearly forty years ago, and how they can insist on fixing this dangerous contrivance without a ventilating pipe, is more than I can fairly understand. I will not believe for a moment that its use is continued in order to sell the D trap with it, the making of which occupies the time of the apprentices, or to provide for a regularly recurring bill of repairs; but those who persist in its use lay themselves open to the charge that they are introduced for no other purpose. I think the sole reason for the patronage it obtains is to be found in ignorance, and a false estimate of its economy and cheapness of erection. And I am per-

\* By Mr. W. Kasele, C.E.; being Remarks illustrated by Samples in Exhibition of Sanitary Appliances at Croydon.



snaded that if our builders would only take to heart the lessons taught by the exhibition of the much better articles exhibited at the present day in sanitary exhibitions, they would refuse to have anything more to do with it.

There is another fault concomitant with the use of nearly all closets, and that is the leading of the waste of the tray or safe under the apparatus, into the closet-trap. It is almost invariably taken there in the commoner houses, and in a very large percentage also of the better-class houses even yet, and one-half the smells which encounter one on entering into a closet-room is due to this lamentable want of common sense and forethought in dealing with the closet essentials.

It is perhaps somewhat too much to expect that our tradesmen are all acquainted with the necessity for the disconnection of the house drains from the sewer by means of any of the numerous disconnection traps—constructed on various systems—now in the market. But until such a trap is provided between the house and the sewer, at some part of house drain, the work has been only half done. Nor can there be obtained any absolute safeguard from sewer air or house drain gas, or any thorough ventilation of the horizontal drain or vertical pipes, until some method of absolute disconnection be practised, and fresh air taken in at such a trap in order to be discharged at the ventilating pipes. No plumber, however perfect his work, can hope to witness really satisfactory results from his labour until this disconnection has been achieved.

### THE BRUNSWICK BASCULE (Formerly known as the Ringsend Draw Bridge), BLOODY BRIDGE, AND THE RICHMOND GUARD TOWER.

We are enabled, through the courtesy of a not unknown contributor, to give our readers a view of two of the "engineering difficulties" of former days. When in 1796 the Grand Canal Company had built their floating and graving docks on the strand at the termination of Lazar's-hill, communication should be kept up, and neither transit by land or water interfered with. The timber *draw* bridge, or rather *lift* bridge—more properly termed "Bascule,"—was the best the science of that day could provide.

In "A View of Ancient and Modern Dublin," published in 1796, by John Ferrar, author of the "History of Limerick," we find the following:—

"Riding to Ringsend we were presented with a striking proof of the vast extent of human labour and human genius in docks building there; and we were highly pleased to find Counsellor Vavasour reclaiming a great tract of waste ground near the bridge. Ringsend was in a very melancholy situation in the year 1787. It resembled a town sacked by an enemy, or that had felt the hand of all-devouring time. The unfortunate inhabitants were in a manner excluded from all intercourse with Dublin. They were attacked by the overbearing floods which issued from the mountains in irresistible torrents and completely demolished the bridge. The new bridge is a very handsome one, and cost only eight hundred and fifteen pounds."

The same author informs us, in writing of the Ringsend docks, that—

"These works, when finished, will be the noblest of the kind in Europe, and will cost above £100,000, of which sum Parliament will pay one-third. They include a space of 35 acres of ground, of which 26 acres will be covered with water sixteen feet deep. The rest of the ground will be occupied by three large sea locks to admit ships from the river; three extensive graving docks, stores, and wharfs, from 70 to 84 feet wide. The great basin is 4,000 feet long and 330 feet average breadth, capable of containing 400 sail of square rigged vessels, which is equal in extent to the whole of the admired docks at Liverpool. The upper basin is 2,000 feet long. The engineer is Mr. Jessop, who comes from England yearly to give plans and directions. Mr. Edward Chapman is the executive engineer. Messrs. Cowan,

Gamble, and Kirkwood are contractors for the graving docks; Mr. Stephens for the ship locks; Messrs. Bergan and Hayes for the bason walls."

We have then the following:—

"April 23, 1796.—The great bason was opened at high tide; when his Excellency Earl Camden in the Dorset yacht, commanded by Sir A. Schomberg, with a number of barges from the canal, cutters and boats highly decorated, were admitted under a discharge of twenty-one pieces of cannon, and had room to sail in all directions. There were sixty thousand people present; it was the best aquatic fête ever seen in this kingdom. John Macartney, Esq., addressed his Excellency, and was knighted."

From that time till its demolition the old drawbridge did duty. The bridge over the Dodder, described as being very handsome, and costing only £815, did not long survive, but was swept away in the floods of 1802. From increased traffic, owing to the great and rapid improvements on the Penbrooke estate, and number of buildings being erected in Sandymount and along the seashore in that direction, the old bascule had long been considered a nuisance rather than a convenience; and it was decided on removing it, and setting up in its place something more suited to modern requirements. We remember being in an omnibus one very wet evening in February, 1851, when, the fore wheels being on one side of the roadway and the hinder on the other, the carriage became immovable, and all hands had to turn out in the torrents of rain to assist the horses in getting the heavy vehicle over. This will afford some idea to our younger readers of what sort of bridge that was, especially when taken in connection with Mr. Sloane's graphic sketch. It is much to be regretted that when a reformation was attempted, something less calculated to disappoint the public was not aimed at. We find in a journal\* of that date, in an article on architectural competitions, that—

"Never was a more wanton outlay of funds subscribed for a metropolitan improvement, or a more stupid perversion of an intended public benefit, by a sham attempt to substitute a convenient structure for an intolerable nuisance, than was exemplified in this instance. How could an intelligent committee have possibly laboured under such a delusion as to imagine that the new bridge was adapted to the requirements of an extensive thoroughfare? If want of funds be pleaded, we can meet the objection by stating that the same philanthropic spirit which prompted the Hon. Sydney Herbert and the Grand Canal Company munificently to subscribe each £400, Mr. Lovely £50, and Alderman Roe 20 guineas, irrespective of minor subscriptions, would have induced some others and the public generally to provide a larger, nay, double or treble the amount, to complete the structure creditably. . . . As the case now stands, the bridge is unsuited for its intended purposes, being from its narrowness incapable of admitting two vehicles to pass to and fro thereon simultaneously."

In the twenty-two years that have elapsed since the foregoing was written matters have not improved, and a considerable length of road and what might be made a valuable neighbourhood is shut out from the benefit of tramways, and left altogether depending on the irrepressible jarvey.

Of the old bridge in line with Watling and Silver streets, called "Bloody Bridge" (until the erection of the Royal Barracks caused its name to be changed by some to Barrack Bridge), little can be said. In 1670 a ferry that had long been there was abolished by the erection of a wooden bridge. This incensed certain apprentices, who assembled and attempted to burn the structure. Twenty of them were seized, but were rescued, and in the mêlée four were killed. To this the

name is attributed. It was immediately afterwards changed to a stone structure.

Wright's "Guide to Ancient and Modern Dublin," though generally tolerably correct, is in this instance strangely in error. It states at page 277 "that in the year 1671 the apprentices of Dublin assembled for the purpose of demolishing the wooden bridge over the Liffey near the Royal Barracks, but, being interrupted by the military, a battle ensued, in which four of the young men were killed and the remainder put in bridewell. In consequence of this incident Barrack Bridge was built, which still, however, preserves its name, and is the oldest bridge now standing in Dublin." In page 272 it appears that the foundations of the Royal Barracks were not laid until 1701.

The handsome castellated gateway which formed the entrance to the Military road was erected by Alderman Darley, from designs by Francis Johnston, architect to the Board of Works, during the viceroyalty of the Duke of Richmond, and, with the old bridge, formed a not unpicturesque termination to the perspective of the river. The road which passed through the fields by the boundary wall of Steevens's Hospital crossed the Camac river by a neat little one-arched stone bridge, and so on to the Royal Hospital. The erection of the Great Southern and Western Railway terminus, walling in of the river to the King's Bridge, and consequent increase of traffic, caused the removal of the gateway, which was in 1847 re-erected on its present site at the western entrance to the long avenue from Kilmainham to the Royal Hospital—a position to which it is particularly well adapted. For some years before the removal of the old bridge in 1859, it was considered unsafe for heavy traffic, and only foot passengers could cross, a wall with a small gap being erected at either end. The present bridge, with the widening of Ellis's-quay, is from a design by the late George Halpin, jun., the working drawings, details, &c., being produced by Mr. Sloane, at that time engineering and architectural assistant to the Port of Dublin Corporation. The erection was superintended by Mr. John Connolly, clerk of the works of the Port, and opened by the Queen passing over it in August, 1861.

### THE POLITICS OF LABOUR.

THE Parliamentary Committee of the Trades Union Congress have addressed a letter to the Home Secretary, thanking him for the immense value he conferred upon Englishmen in carrying the Summary Jurisdiction Act through Parliament. They now ask him earnestly that the Act may be applied to Ireland and Scotland for the benefit of their fellow workmen. In respect to Ireland, the committee say: "While urging this upon your attention, we cannot refrain from saying that we know no reason why similar privileges should not be conferred upon the Irish people. We beg to inform you that our next Trades Union Congress, in September, 1880, will be held in Dublin, and to express our belief that nothing can be more calculated to promote content among the Irish workmen than the voluntary extension of liberties to Ireland, similar to those we enjoy. We should be extremely glad to be able to announce to our Irish brethren the fact that the Government intended to carry through a similar reform for Ireland."

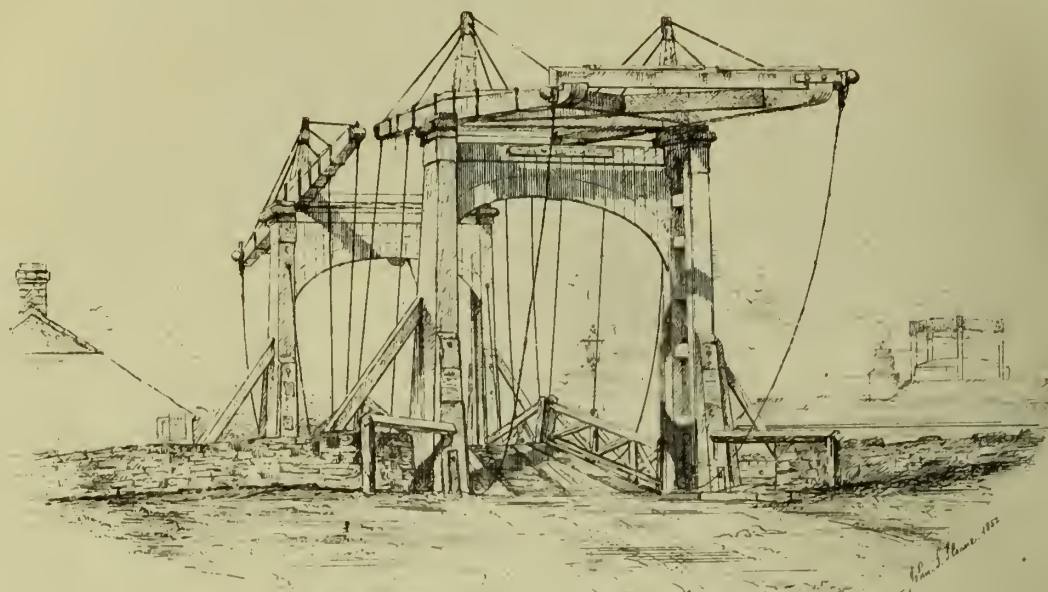
In a circular of the same committee to officers and members of trade societies and trades councils, the programme of a Trades Federation is announced, with the proposed

\* Irish Literary Gazette, August 1st, 1857.

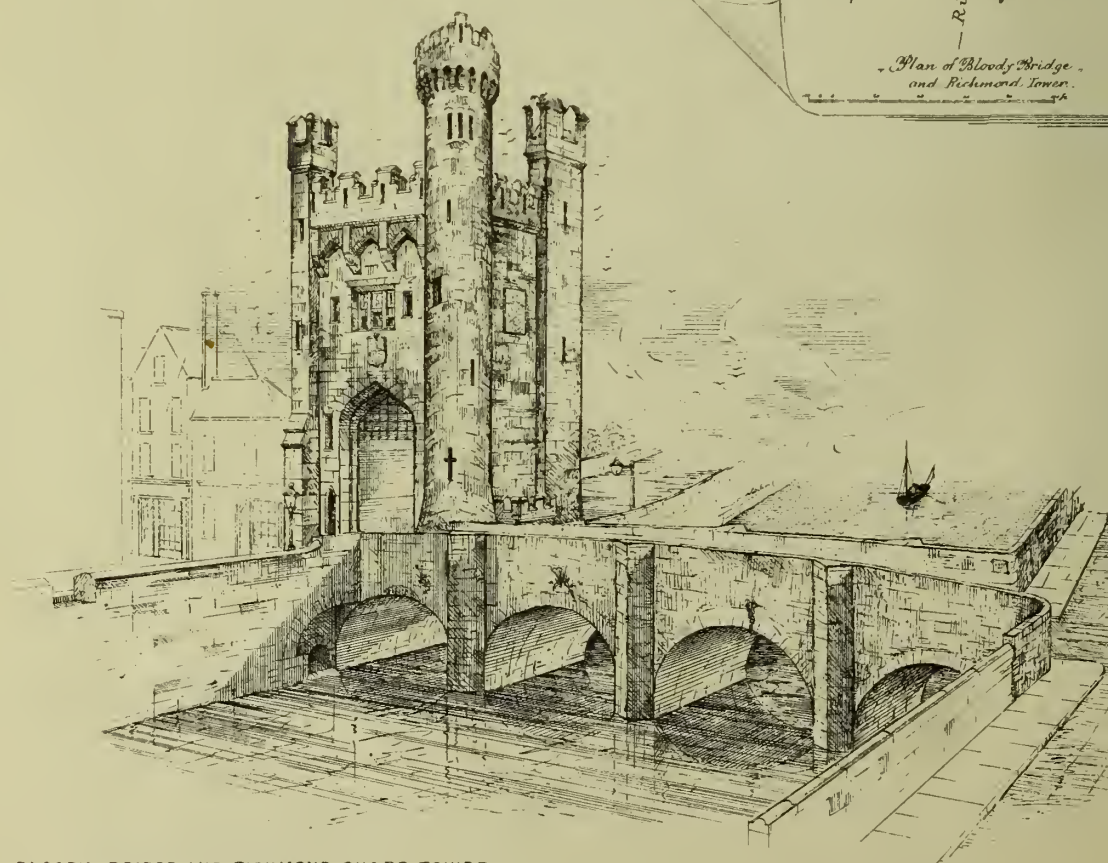
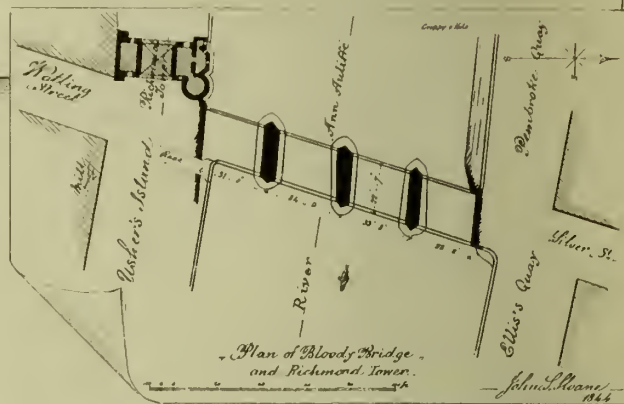






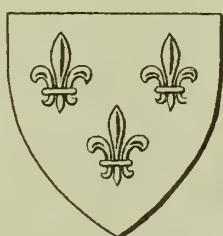


— THE BRUNSWICK BASCULE —  
— Commonly called the "Draw Bridge". —



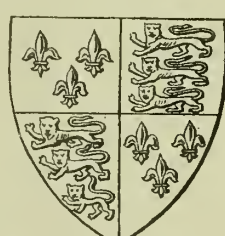
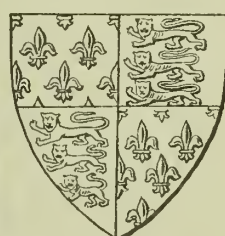
— BLOODY BRIDGE AND RICHMOND GUARD TOWER. —





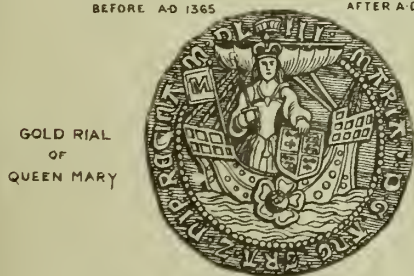
"FRANCE ANCIENT"  
BEFORE A.D. 1365

"FRANCE MODERN"  
AFTER A.D. 1365

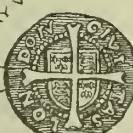
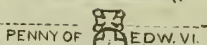


"SHIELD of EDWARD III"  
A.D. 1340.

"SHIELD OF HENRY IV."  
ABOUT A.D. 1405.



GOLD RIAL  
OF  
QUEEN MARY



ROSE RIAL  
OF  
HENRY VII.



ROYAL  BADGE  
OF ENGLAND.



CONVENTIONAL FORMS OF THE ROSE AND THE FLEUR DE LYS FROM VARIOUS AUTHORITIES.





THE LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



rules for its management if formed. Its formation, according to the circular, will depend upon a sufficient number of replies being received to bring the total federated number of members up to the required 100,000. In conclusion, the committee observes, "The matter now rests with the trades." The word federation has been in the lips of most trades for a considerable number of years. Much valuable time has been occupied and money spent in proposing various schemes, which have previously been before the trades. You have now a practical proposal before you. Let your decision, whatever it may be, settle the question for a time at least, and allow us to turn our attention to other important matters upon which we can agree. We have only to reiterate this advice—Don't think you can ever have a federation except it is based upon sound financial principles."

The first object of the federation, as declared, is for the formation of a fund for the maintenance of the "nine hours' system" as a recognised day's work. A Trades Federation, wisely conducted, could be the means of conferring benefits on the united workmen. Masters and men alike have a right to organise for the protection of their respective interests. We do not like to see labour conflicts, or conflicts of capital with labour. If the Trades Federation becomes a reality, we hope the powers obtained will be strictly used as a defensive weapon, and not as an offensive one. Labour, and those who live by it, have every right to protection; and let masters and men remember the oft quoted words, "Thrice is he armed who hath his quarrel just, &c."

### THE ROSE AND THE LILY IN HISTORY AND HERALDRY.\*

By JOHN VINYCOMB.

IRIS—FLEUR-DE-LYS.

"Amid its waving swords in flaming gold  
The Iris towers."

—CHARLOTTE SMITH.

THE gorgeousness and beauty of the *Iris* tribe has been proverbial for ages. Though usually called a Lily, hotanists arrange the *Iris* and the Lily under distinct families of plants, to which they give their names, and of which they are the representatives. The generic name *Iris* is the Greek word for the rainbow, applied to it on account of the beautiful and varied colours of the numerous species included in the genus and natural family Iridaceæ. In classic mythology *Iris* is the messenger of the gods and of good tidings. Virgil, in the *Æneid*, relating the scene of the death of Dido, describes *Iris* as sent by Juno flying down with dewy wings from heaven with a thousand colours about her from the light of the sun, that she might free the soul that struggled to be free. Longfellow apostrophises the goddess under the semblance of the *Fleur-de-luce*—

"Thou art the Iris, fair among the fairest  
Who, armed with golden rod,  
With the celestial azure bearest  
The message of some God."

The *Iris* is a true earth-born messenger of the gods, even as the cloud-born rainbow *Iris* is. In its stately growth and glorious tinctures it tells us how infinitely to be preferred are those natural beauties which we see everywhere around us direct from the hand of God, compared to which all "the adulteries of art" look poor and mean. Surely "Solomon in all his glory was not arrayed like one of these" the most beautiful of all the "lilies of the field."

An interesting fact bearing on the early history of our country will serve to show that we are not indebted to the *Iris* for its beauty alone: reference has been made to its sword-like leaves. Old writers term the *Iris* "*Flos Gladioli*," the flower of the gladder or sword grass, from the Latin *gladius*, a sword.

In some parts of England the yellow *Iris* is known as the "Segg," the plural "Seggs" being most commonly heard. This is an old

provincial form of the word "Sedge," and, like it, derived from the Anglo-Saxon "Segg," or "Seaux," a small short sword such as the Saxons used when they overran South Britain, and which was so characteristic of them that some etymologists derive their most widely-accepted national name from it, hence "*Searna*" Saxons, the men who wore or knew how to use the Seax. Students of history will recall the murder of Vortigern, the British king, and his nobles at the feast which the Saxon leader Hengist made to them, when "the great king," as Vortigern signifies in Welsh, "had been well whittled with wine." The watchword uttered by Hengist—"Nimed eure seaxes," unsheath your swords—was the signal for the slaughter of the Britons.

HERALDIC FLEUR-DE-LYS—FLEUR-DE-LUCE—  
CONVENTIONAL LILY—IRIS.

"France, call to mind thy war-cry bold  
"Mont-joie Saint Denis!" and thy shield  
Where three fair lily flowers of gold  
Shine brightly in an azure field."

Much controversy has existed as to the origin of this beautiful heraldic device, some writers supposing it to represent the Lily, others the head of a warlike weapon, while others have maintained that it represented a toad. Upton called it "*Flos Gladioli*," the flower of the gladder or sword grass. This device, from its shape, may be easily admitted to have its origin in the *Iris*, and rude sculpture and painting would readily adopt the stiff and definite outline which we see it now possess. For more than one thousand years its conventional form has been in France a royal badge of honour. A few words as to the origin of this historic symbol may not prove uninteresting.

In the Book of St. Albans we are gravely told that the arms of the king of France "were certainli send by an Aungell from Heaven, that is to say iij. flouris in maner of swerdis in a field of asure, the certain armys were giuen to the aforesaid Kyng of France (Clovis) in sygne of euerlasting trowbull, and that he and his successors always with hattle and swords shall be punished." The allusion here is to the sword-like leaves.

"Ancient heralds," says Newton, "tell us that the Franks of old had a custom, at the proclamation of their king, to elevate him upon a shield or target, and place in his hand a reed or flag in blossom, instead of a sceptre, and from thence the kings of the first and second race in France are represented with sceptres in their hands like the flag in flower, and which flowers became the armorial insignia of France."

It is said to have been one of the emblems on the escutcheon of France so early as the fifth century, but it was rendered more particularly an object of notice in the twelfth century by Louis VII. Loys, A.D. 1137-1180, in allusion to his name, who, according to Monfaucon, adopted the flower into his royal standard as his special flagon or device when he joined the second crusade excited by St. Bernard, A.D. 1146, and led his army to the Holy Land against the infidel. This circumstance gave to the *Iris*, or at least to the figure which was supposed to represent it, the title of *Fleur de Louis*, flower of Louis or Lewis—evidently a rebus on the name, according to Mr. Planché, who adds that "*Clovis*" is the Frankish form of the modern Louis, the C being dropped, as in Clothaire, Lothair, &c.

"Great Edward, with Lilies on his brow,  
From haughty Gallia came."

—GAY.

To the almost constant wars between France and England may be attributed the frequent use of the *Fleur-de-lys* in English heraldry. Edward III., in 1340, quartered the arms of France ancient and England on his great seal, in pretension of his claim to the throne of France. The French king (Charles V.) therefore reduced the number of *Fleurs-de-lys* to three in the arms of that kingdom, most probably as a protest against the assumption of the English, though other reasons are given. It is said to symbolise

the Blessed Trinity; it was also said to represent the three races of the kings of France. In the history of flags, ensigns, and colours in the French monarchy, M. Rey states that the kings of France were accustomed to carry on their arms the *Fleur-de-lys* painted with three leaves to represent *Faith, Wisdom, Chivalry*; the leaves which hang like wings mean Chivalry and Wisdom, which guard and defend the third leaf which is between them; it is longer and higher, by which Faith is meant and signified.

The ancient royal escutcheon of France was "azure, semee of *Fleurs-de-lys*," or sometimes termed "*Semee-de-lis*," or repeated "*sans nombre*," i.e., the flowers scattered over the field, and the shield itself having the appearance of having been cut out of a larger object. This shield is distinguished as "*France ancient*."

Charles V., about A.D. 1365, reduced the number of Lilies to three; this shield is, for distinction, termed "*France modern*."

Henry IV. of England (A.D. 1405) following up his pretension to the French throne, conformed to the altered blazonry of the French sovereign, and quartered France modern on his arms. The French Lilies underwent many changes on the English shield. It is said by some writers that King Edward at first placed England before France, but that he soon afterwards reversed the order, probably because France was the more ancient monarchy.

The pretension of the Anglo-Norman kings to the crown of France originates from Henry II. of England, who married Eleanor, the divorced wife of Louis VII. (daughter and heiress of William V., Duke of Aquitaine and Guyenne). She brought him in marriage the entire of western France, and he added considerably by force of arms to these possessions, so that at his death in A.D. 1189 he possessed nearly three-fourths of France. As a badge or cognizance the *Fleur-de-lys* first appears on the seals of Louis VII. of France, surnamed *Fléury*. It was borne both singly and repeated "*sans nombre*" by Philip II. surnamed *Augustus*, the contemporary of our Richard I. (*Cœur de Lion*) and John. Edward III. was the first Anglo-Norman sovereign who formally pressed his claim to the French crown and adopted the French Lilies on the English shield, quartered with the three lions or leopards, as they were termed, the lilies occupying the first and fourth quarters, the lions the second and third, and retaining their position up till the time of Queen Elizabeth, after which the position of the French lilies was frequently changed, and only at the beginning of the present century was the claim finally given up.

Under the Tudors and Stuarts the *Fleur-de-lys* was much used as one of the Royal badges, holding a prominent position on the great seals of the period, sometimes alone, or in conjunction with the emblems of England, Scotland, and Ireland—the rose, the thistle, and the harp. (The Shamrock does not at this period seem to have been recognised as the emblem of Ireland.)

Thus the kings of England, in assertion of their supposed right, quartered the arms of France and assumed the title of kings of that country from the time of Edward III., 1340, until the legislative union of England and Ireland, during the reign of George III., in 1801, and the consequent revision of the British Arms, a period of 461 years, when the claim was relinquished, and the *Fleur-de-lys* discontinued as part of the royal armorial insignia of England.

In France, the Revolution of 1792 saw the golden Lilies erased from its native banners, and the cap of Liberty occupied its place; this in its turn was hidden by the wings of the Bonaparte eagle. With Louis XVII., in 1814, the ancient *Fleur-de-lys* was again reinstated as the legitimate national emblem, and continued by Charles X., with whose abdication, in 1830, we have the last of the *Fleur-de-lys* (flower of Louis) as a national emblem.

In 1852, after Louis Napoleon had by the



vilest treason assumed the Imperial purple, an edict against treasonable emblems was passed in France, making it unlawful to introduce upon any jewel, bracelet, cabinet-work or tapestry, any representation of the Fleur-de-lys. By a strange revolution in the destinies of France the Bonaparte emblems were in their turn ruthlessly set aside for the tricolor of the new Republic.

By a decree of the French Republic, in 1874, not only was the circulation of photographs of the Prince Imperial forbidden, but any representation of violets or bees (the personal emblems of the Bonapartes) to be made, "a decree," adds a fair writer, "almost as difficult to enforce as to forbid bees to fly or violets to bloom."

The different families of the Bourbons, the old royal race of France, still proudly bear the Golden Lilies on their shields. You will find it in the centre of the arms of Spain. It was made the ornament of the northern radius of the mariners' compass in honour of Charles of Anjou, who was reigning King of Sicily at the time of the great discovery. It was worn by the knights of several orders in Spain. In the armorial bearings of the Medici and Este, and in the arms of many noble families on the Continent, it occupies a conspicuous place. St. Louis conferred upon the Chateaubriands the device of a Fleur-de-lys, and the motto, "My blood tints the banners of France." The seal of John Mundegumri, about 1175, is a single Fleur-de-lys, the original of the three Golden Lilies, borne by his descendants the Montgomeries, Earls of Eglintoun.

The Fleur-de-lys was assumed by many of those who took part in the French wars, to signalise their actions or intermarriages with noble families bearing similar devices.

In the square of La Puelle, in Rouen, stands a statue of Joan of Arc, who so bravely saved the French monarchy from the English filibustering kings. Sculptured upon it are Fleurs-de-lys and an inscription—

"The maiden's sword protects the royal crown;  
Beneath the maiden's sword the Lilies safely grow."

The Fleur-de-lys was a favourite decoration having a national character during all the period of the French monarchy, and was freely used as the national badge, either highly conventionalised or in its natural form. It is still a favourite flower in French gardens; a variety of the purple Iris of an intensely bright blue is cultivated in profusion in the Jardin des Plantes, having a most imposing appearance. The City of Paris and many of the towns in France retain the Lilies on their shields in some form or other.

The name Fleur-de-lys is stated by many early writers to be derived from Lóys, the ancient manner of spelling Louis. Dante and others adopt the etymology of Fleur-de-lys, or the flower that grows upon the banks of the River Lys, which separates France and Artois from Flanders (Artois was united to France by the marriage of Philip Augustus with the daughter of the Count of Flanders, A.D., 1191). Another derivation is from Fleur-de-lis, the Lily flower. Be this as it may, the conventional form of the Iris has always been retained; it is confounded apparently with the White Lily (*Lilium candidum*), and hence termed *Fleur-de-luce*, flower of light.

THE WHITE LILY.—Emblem of the Virgin.

"It was the plant and flower of light."

—BEN JONSON.

The White Lily denotes, in floral signification, immaculate purity, and was regarded as the embodiment of light itself, and, as such, it became the special emblem of the Blessed Virgin. It is curious to observe how the Iris and the Lily have been confounded together, one for the other, and the heraldic form of the Iris persistently used to typify the Virgin; and, again, how the old ensign of France, the *Yellow Water Iris*, changed in the popular mind to the virgin Lily. "We hold," says Lamothe la Vayer, a French writer, "the whiteness of our Lily of our scarfs and royal pennant, a symbol of purity as well as of liberty."

As the origin of the appellation became

forgotten, the primitive title of Flower of Lóys or Louis was changed to Fleur-de-lys; *flower of the River Lys*, *flower-de-luce*, *flower of light*, and *Fleur-de-lis*, signifying simply *flower of the Lily*. Thus terms in common use become perverted, their significance changed, and the origin of them frequently consigned to oblivion.

The early devotional painters of Italy frequently represented the Virgin with a stalk of White Lilies in her hand, significant of her immaculate purity. St. Joseph also is represented holding a rod of White Lilies. The legend relates that the Virgin Mary, before her espousal, had many suitors for her hand, all equally worthy. The choice was left to a higher power. The rod or staff of each of the suitors was placed in the sanctuary of the temple, that he whose staff put forth blossoms should be the chosen of the Lord. On the morrow, behold! Joseph's alone had budded and grown into a stalk of beautiful White Lilies. Virgin saints and martyrs are also frequently depicted holding Lilies, indicative of their unmarried condition and pure and stainless life; usually some other emblem is carried by which the person is identified.

In ecclesiastical art the Fleur-de-lys, or conventional Lily, was an especial favourite in the middle ages with the designer of inlaid pavement tiles, church vestments, and decorations. In its connection with church decorations the Lily in its various conventional forms is always to be considered as the special emblem of the Virgin, and not as having reference to France, unless blazoned upon a shield of arms. *Semt of Fleurs-de-lys*, *Semt-de-lys*, *Fleur-de-lise*, strewed with an indefinite number, or "sans nombre," is a favourite decoration after the manner of the shield of "France ancient," as a diaper for plain surfaces on walls, or on embroidered vestments.

The royal crown of England and the coronets of the royal princes have Fleurs-de-lys set along the rim alternate with crosses patee. "This combination of crosses and Fleurs-de-lys seem to symbolise" (says Parker's "Glossary") "*our Lord and the Blessed Virgin Mary*." Some have supposed the flowers to represent France, but their association with crosses patee, which are not the insignia of England, renders this supposition improbable.

There is yet another Lily calling for special mention—the floral badge or symbol of a party well known wherever Irishmen are located, especially in the north of Ireland, where it usually comes into bloom about the 12th of July, the anniversary of the Battle of the Boyne, when it is freely displayed by the partisans of the Orange brotherhood. It is not strange that this flower should be the chosen emblem of the Prince of Orange—indeed its colour renders the reason self-evident. Like the Fleur-de-lys, or Flower of Louis, it was a rebus on the name or title; unfortunately it became the badge of a faction, of the ultra-Protestants, the party of intolerance and ascendancy in Ireland, as it was to the Catholics the sign of defeat, humiliation, and shame, of penal laws and civil disabilities. It is devoutly to be wished that under more equal laws in the time to come it may be said in the noble words of Macaulay—

"None were for a party, and all were for the State."

Party colours and emblems, however, like old faiths, die slowly, lingering and sustaining bitterness of feeling long after all cause of difference is forgotten.

The accompanying sheet of Illustrations, which is self-explanatory, gives the heraldic shapes in use of the Rose and Fleur-de-lys, besides suggesting modes of treatment of these plants for decorative purposes.

NAAS DRAINAGE.—We have been informed that Mr. R. Rawlinson, C.E. (Royal Sanitary Commissioner) has approved of the minor plan for the drainage of Naas, proposed by Mr. Brett, C.E. The committee have decided on recommending the Board of Guardians to have it (with some modifications) carried out forthwith.

## CORRESPONDENCE.

### THE COUNCIL OF THE INSTITUTE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—In the report of the council meeting of the Royal Institute of the Architects of Ireland, in your issue of the 1st inst., I find that "the question of the proposed buildings for the Royal Agricultural Society, whether as open to the profession generally, or whether being designed, as reported, in the General Valuation Office, or by the Board of Public Works, was under discussion," and I am much puzzled to know what connection the Valuation Office can have with architecture, or who the architects are who are employed in that office. It would not be at all unnatural if the Board of Works was called on for a design, although not flattering to private practitioners; but why the Valuation Office should interfere is quite beyond my comprehension, and I would suggest that some of the architects of weight and worthy of respect should address the authorities on the subject.

The tabulated statement contains nothing new, it appears to be merely answers to queries that every man who understood his profession should be well aware of; and there is a strange jumbling of the terms, client, tradesman, and clerk of works, which latter should be foreman of works, a clerk of works being a different officer altogether. The architect is bound to supply two copies of the original plans: one for contract deed for his employer (misnamed client), and one for copy of contract deed for contractor, and all else requisite for the due carrying on of the work; tracings of the plans should be given to the foreman or taken by him from the originals, all to be returned by him to architect when work is completed, but no architect deserving of the name would cavil at a set of drawings more or less to attain to a desirable end. Architects should never interfere with or supply quantities for their own works; it is never done in Ireland.—Yours,

BATIMENT.

Dublin, 10th November, 1879.

P.S.—The foreman here alluded to is the employer's foreman, the contractor's foreman gets his directions and plans from his employer. All orders should be given directly to the contractor, and not through clerk of works, foreman of works, or any other subordinate. B.

### TRADESMAN OR CONTRACTOR?

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Will you kindly give me space in your invaluable journal to protest (prior to the proposed meeting of the so-called Council of Irish Architects on the 27th) against what appears to me to be an impudent and, I will add, ignorant assumption that pervades the tabulated statement referred to at meeting on 20th ult., and which very properly met with the indifference it deserved from the Royal Institute of British Architects.

It is not easy to discover who the tradesman may be that is referred to in the queries, but I presume he is the contractor; and I, as one of a body second to none in respectability, treat with deserved scorn the idea of directions being conveyed to me by any clerk of works or subordinate. If I take a contract, I do so to carry out the work in accordance with the plans and specification. If the architect has made any omissions in these, he is at liberty to amend them under certain conditions, and to consult with me; but if he attempts to give me orders, he will find his mistake.

I take a contract to do certain work in accordance with the plans and specification annexed to it, and I employ tradesmen to assist me, for whom I am responsible. I care not one pin what these plans may be a copy of. I hold by these, and these only; and it is the architect's place to see that they are *fac similes* of those he supplied to his and my employer, and no architect shall attempt to



interfere between me and my tradesmen. Believing it is time that these matters should find their level, I am, yours, &c.,  
AN IRISH BUILDER.

I enclose my card, but not for publication.

## INDUSTRIAL EMPLOYMENT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—If money is to be advanced for the purpose of giving employment to the poor of Ireland during the winter, I would suggest that it be expended upon the working of mines and quarries in the country, and which, if dealt with properly, would not only be profitable, but would be the means of teaching the people a way of earning a living, and also, if followed up, create a trade that would prove of great value. Where these industrial resources are is well known to everyone who has been engaged in carrying out works throughout the country. At Arigna you have ironstone, fireclay, and coal, all on the same ground. The coal can be used in the manufacture of the iron and fireclay, and render it fit for the market. As for the stone, especially marble, you have an unlimited quantity, and of colours and quality equal to any marbles in the world. By employing the youths, and utilising the water-power, everywhere so abundant, would enable our products to compete with any manufactured marble work now imported. There are other materials which could be turned to account with profit, and be of great advantage to Ireland.

A PRACTICAL MAN.

## THE MACHINERY OF GAS TRADING.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—As the Corporation are about making a new contract for the public lighting with the Gas Company, who have taken such an interest in the proper lighting of the streets (none at all, of course, in the increased consumption of gas) as to gratuitously erect and keep lighted large lamps in Sackville-street until such time as the anti-jobbing members of the Corporation may be bullied or duped into paying for them out of the rates payable in the poorer or worse-lighted localities of the city, an account of the efforts that have been made to humbug the public in the matter of the public lighting, and to reduce the consumption of gas in the public lamps, may at present prove very useful.

From 1868, when the Corporation undertook the lighting and extinguishing of the public lamps, down to the end of 1876 the citizens were led to believe that the average number of hours that 4 ft. of gas per hour was nightly consumed in them was 10; but anyone who would take the trouble of dividing, for instance, the bulk of gas asserted to have been consumed in the public lamps during 1876 (viz., 39,063,100 cubic feet) by the number of lamps (3,473) in use during that year, and again dividing the result (11,247 cubic feet) by the number of days (366) in that year, would at once discover that the average bulk of gas consumed in each lamp per night was only 30½ cubic feet—just sufficient for 7½ hours' lighting at 4 cubic feet per hour. Since the beginning of 1877 the hours of public lighting were reduced half an hour per night, and the fiction was still continued that the average time the lamps were nightly lighted since then was 9½ hours. But if the inquirer will divide the bulk of gas asserted to have been consumed during that year in the same way as above, it will be found that it only gave 28½ cubic feet per lamp per night—a little over what was sufficient for 7 hours' lighting at 4 ft. per hour, supposing in both cases that the excessive pressure on the gas had no unjust action on the measuring-drum wheels of the meters, which I unhesitatingly state it had, reducing the hours of lighting to 7 hours in 1876 and 6½ hours in 1877; and that there may be no doubt about the consumption of 4 ft. of gas per hour in all the public lamps, I now give the following proofs.

In June, 1874, the Inspector of Public Lighting suggested to No. 1 Committee that the lamps in the back streets, &c., might consume less than 4 cubic feet per hour, and the committee rejected the suggestion. In March, 1875, he reported to that committee on the great increase in the bulk of gas consumed during the quarter January, 1875, and attributed that increase to the consumption of 4 ft. of gas per hour in all the lamps. In April, 1877, on the report of the Inspector, the Corporation in council passed a resolution to have the consumption of 4 ft. per hour reduced to 3½ ft. in all lamps.

That resolution was forwarded to the Gas Company, and their secretary wrote to the Town Clerk refusing to comply with the request contained in it, on the grounds that his directors would lose too much of their profits by the change, which, if effected, would cause the lighting of the city to be very defective. In October following, at the meeting of the Corporation, another report was read from this Inspector of Public Lighting; in it he coincided with the views of the secretary of the Gas Company, and withdrew his former report, stating that he had made a number of experiments, and found Mr. Cotton's views about the reduced lighting to be "perfectly correct."

On September 3rd, 1879, another report to Committee No. 1 was issued from the Public Lighting Department. In it I find the following statement:—"Although the governors (in the lamps) are made, tested, and stamped in London as 4 ft. governors, yet, the experiences of this year 1878, the consumption as above 36,938,600 cubic feet; the number of lamps 3,520, and the daily hours of lighting 9½; shews that the average consumption has been but 3 ft. per hour." Another part of the report shews how this discovery saved the Corporation a something in the year's gas, representing £2,673. A consoling matter for the ratepayers, although only on paper; but parties who were obliged to be in the streets during the early morning hours of 1878 positively state that the lamps were extinguished long-long before daybreak.

May I now inquire how did this inspector fail to discover before "the experience of 1878" that those stamped 4 ft. burners only consumed 3 ft. per hour, and, of course, that all his anxiety about them since June, 1874, was all—a joke? Or, may I ask, did he ever make any such discovery at all at all? He does not attempt shewing that those burners did not consume 4 ft. per hour in any of the other years during which he neglects stating that the lamps were not lighting for an average of 10 or 9½ hours per night, nor does he assign any reason why that extraordinary occurrence happened in 1878. But, the following table shews that in the preceding years 3 ft. per hour for the average of 10 in 1875 and '76, or 9½ hours per night in 1877 and '78, is equally as applicable to the bulk of gas consumed in the number of lamps in those years, as a consumption of 4 ft. per hour would be for an average of 7½ hours per night during the two former years, or 7 hours lighting per night during the two latter ones; allowing the fractional excess in both cases to have been caused by excessive pressure, or anything else that may be agreeable.

Year	Total bulks of Gas charged for	No. of Lamps	Bulk per lamp per year	Bulk per lamp per night	Remarks
1875	39,084,000	3,442	11,355	31½	3ft. per hour of 10 per night, or 4ft. do. of 7½ per do.
1876	39,063,100	3,473	11,247	30½	
1877	36,589,700	3,496	10,466	28½	3ft. per hour of 9½ per night, or 4ft. do. of 7 do.
1878	36,938,600	3,520	10,494	29¼	

I cannot withhold stating my firm conviction that when the writer of that concocted report signed his name at the foot of it, he must have looked upon the members of No. 1 Committee as being an out-and-out pack of "muffs"; for since I first observed the flames from those 4 ft. burners in all the metered lamps during July, 1874, I have never observed the slightest change in their size, shape, or brilliancy, down to the present time, except in three instances; although for some time past the size and shape of the flames in numbers of the public lamps have been gradually changed and diminished, no authority that I could hear of having been given by the Corporation for making any change in them, new burners having been supplied.

The maximum pressure on the gas supplied for public and private lighting inside the limits of the city of Dublin has for these five years past been up to and close on 3½ in.; and I firmly believe that the dread of bursting the rotten, porous gas mains alone prevented the Gas Company increasing the pressure to 5 in. or 6 in., and so improve on that "tinkery dodge" for making money. A very large sum of money is annually honestly made in the cities of Manchester and Glasgow by the manufacture of gas, yet the maximum pressure on the gas in the mains in those cities is but 1½ in. The superficial area of Manchester and Newton, Hulme, Cheetham, &c. (supplied with gas under same pressure), greatly exceeds that of the city of Dublin, while that of Glasgow is still more extended. Further, I believe that Leeds and its suburbs, Hunslet, Kirkstall, &c.,—of much greater extent than Dublin, Manchester, or Glasgow—is supplied with gas under a pressure of 1½ in.

JAMES KIRBY.

14th November, 1879.

## TOUTING V. ADVERTISING ARCHITECTS.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—There are some very odd notions mixed up together in the report which appears in your last issue of the meeting of the Irish Institute of Architects. The "catechism" part of the report is suggestive of much, but I have not time on the present occasion to write at length. The paragraph 8, however, calls for a few words on account of the manner in which the question is put and answered, which is as follows:—"Is it consistent with the position of an architect for him to be connected with any trading firm, in the profits of which he participates, although his name does not appear; or to hold shares in any company formed for the purpose of building or of supplying building materials? Negatively unanimously (taking a building as to mean contracting building, or distinguished from a company making loans for building purposes)." The words in parenthesis methinks were designed as a saving clause to cover a certain weak point in the armour of the Institute, which all the members of the body are fully aware of. If exceptions are to be made for this person or that, rules and resolutions become valueless, and the outside public will cease to have confidence in a body professing one thing but acting another.

As to advertising architects, alluded to in paragraph 4, I fail to see why an advertising architect—that is, one who publishes his name and address in a public journal—should be blamed, while among those who blame him are architects notorious through the city for their touting practices. This is an advertising age, and all professions now are making use of the Press; but to be sure there is a proper and improper way of making use of it. Is touting for commissions and accepting bye or illicit commissions a more commendable practice than publishing such a card as this in a public journal?

MR. OLIVER BLANK,  
Architect, &c.,

333A Great Brunswick-street,  
Dublin.

How many young architects—aye, and old ones too—are to be found advertising weekly in the professional journals as "assistant architects," and how pleased they are at finding employment in the offices of their better-off brethren, or in land agents' and sundry other offices outside!

"Touting" has this advantage—it can be indulged in without the general public knowing who the architects are who make it a constant practice to thus "cut out" their brethren who proceed to work in a more open and legitimate manner.

Perhaps some of the junior members of the architectural profession in Dublin would state their grievances, now that the ice has been broken for them.

R. S. H.

## NOTES OF WORKS.

New workshops are to be erected at Dundalk for the repair of carriages and wagons of the Great Northern Railway Company.

It is proposed to ask Government to advance £65,000 for the construction of the Tuam and Claremorris Extension Railway.

Surveys are being made for the purpose of extending the Holywood and Bangor Railway to a central station in the vicinity of Arthur-square, Belfast. The Northern Counties Railway Company also contemplate an extension into a new street somewhere near Castle-place.

Plans were recently invited from four of the most eminent firms of architects in Dublin for the extensive improvements which are about to be made to Mercer's Hospital, at a cost between £5,000 and £6,000. The firm of J. and H. Brett (of which Mr. J. H. Brett, C.E., Naus, is a leading member) was one of the four selected by the governors to compete, and we have very great pleasure in stating that the plan sent in by them has been accepted.—*Leinster Express*.



# ADVERSARIA HIBERNICA, LITERARY AND TECHNICAL.

THE custom of keeping Saint Monday, so-called, has not yet entirely died out in Ireland,—indeed occasionally we are afforded evidence both in the city and provinces that our artisans and labourers have an old *grah* or fondness for observing Monday as a holiday or idle day. The Saturday half-holiday in London and other places in the sister kingdom has given workmen more time for recreation or mental study, if they are disposed either way, and the Sunday following immediately satisfies many without leading them to encroach upon the Monday by idling their time. Still there are hundreds of Englishmen as well as Irishmen who are prone to absent themselves from their work on Mondays, and are ready with one excuse or another for so doing. In Dublin, in our early days, the custom of keeping Saint Monday was carried to an extreme extent, and was fraught with dire mischief. The workmen of the building trades were perhaps as great, if not greater, sinners than those of other trades; and in Dublin and several provincial towns the keeping of Monday led to the losing of Tuesday, the first working morning of the week being Wednesday with many foolish artisans, who, besides losing two days' wages, spent more than another day's wages in drink, or went into debt in advance by charging on four working days not yet worked upon the excesses of two days irrecoverably lost. In Ireland, Monday in past times was (and to some extent is still) a most ruinous day to all interests, save that of the publican. If the money lost in a working life by a skilled artisan by absenting himself from work on Monday was put by, it would secure him in his old age a very comfortable annuity for the remainder of his life; but thrift or life assurance is the very last thought in the mind of the Saint Monday idlers and drinkers.

We will remember the grievous injustice that formerly was inflicted by one class of workmen upon another, through absenting themselves from work. Before the introduction of sawing machines into the building trade, one or two pairs of hand sawyers stopping away on Monday and Tuesday from work was the cause of keeping a number of bricklayers, carpenters, plasterers, and other workmen idle. If flooring joists, roofing, or partition timbers were not out, a building was often brought to a standstill; but your sawyers of forty or fifty years ago did not care three pairs of brass pins about their employers or fellow-workmen when they were "bent for a booze," as they were masters of the situation. In justice to the old race of sawyers, it must be said that many of their fellow-workmen did not want much inducement to keep them idle on Monday; and whether the sawyers cut stuff on Monday or not, little work was likely to be done. The sawyers, however, were often not content with keeping Tuesday as well as Monday, and we recollect several instances of sawyers working only three days in the week. Four days were at one time the full amount of a sawyer's working week; but a time came when unfortunately, at least for the living members of the trade, they were glad, through the introduction of saw mills, to get work for three days or less in the week. We still have hand sawyers who are employed in cutting hard woods and green timber; but even in the cabinet and fancy trades, and on landed estates, the machine saw worked by steam, water, or other motive power is fastly superseding the last representatives of the old system of hand sawing. At the old saw-pit a top and under sawyer were necessary, and a dispute of one with the other, or a strike, led to the forced idleness of the second. The pair, however, were mostly chums, and seldom "fell out" with each other. As they sawed together, they drank together, and chalked the plank together, though only one of them walked it. The top sawyer was generally, if not always, the "cock of the walk," and he stood upon his dignity. In spite of himself, he was forced

to let down the dust into his comrade's eyes in the pit below; but his brother often wore a veil, not through any feminine modesty, but for the purpose of keeping his eyes open and the dust from entering them.

The keeping of Saint Monday has led to the punishment and to the loss of more workmen than the sawyers or building workmen generally, though eventually the reform brought about through the introduction of machine labour has been beneficial to the whole community. During the period of transition many artisans have suffered, but their successors have found their labour lightened considerably and their earnings increased.

Many schemes have been proposed during the last and present centuries for the education of the people. The lords of the soil, as a class, never cared to see the labouring classes enabled to learn more than to read and write and cipher a little, and even at the present hour, despite the great advance of education among the children of the working classes, there are many disposed to look with disfavour and oppose any scheme that would inculcate more than a modest knowledge of the three R's to such children. This opposition to education is a great mistake, but there is little fear now of the tide of education being turned aside. The School Board system of England may not be faultless, even from a religious or a financial point of view; but, as a scheme, it is well calculated to improve the position of the country in a few years, and raise the moral tone of the people. The better the children of the present generation are instructed the more improved will be our trades and industries in the next. Good elementary education is the stepping-stone to technical knowledge, and technical knowledge is mental skill ready for manual application. It was asked more than once a half a century ago and since, was the education of the lower classes conducive to morality and good order? Chenevix, in writing on the national character nigh fifty years ago, answered the questions which some narrow-minded men are still asking in England and Ireland, who hold that the education that the children of the working classes are now receiving in School Board schools will unfit them hereafter for hard work or following the pursuits of their parents. It is not necessary that every boy should follow his father's occupation, nor is it requisite that any boy should be forced to take up a trade or profession for which he has no taste. If a poor boy's talents fit him for as good a position as that of the merchant's or the squire's son, he has the same right to expect it, although family influence in the latter case may render it most difficult for the son of the humble man to succeed. Where promotion does not depend upon family influence, but upon talents alone, the humble, industrious, talented, and persevering lad is likely to succeed. We hold that education is conducive to morality as well as skill among the industrial classes; but let us quote what Chenevix wrote long since:—

"An epoch is now begun in which the human mind has taken wing towards a nobler flight than it ever attempted before, and the change which it promises forebodes the greatest consequences. The diffusion of knowledge among men of every rank is now becoming so general, that in half a century [say now] the lowest classes in society will contain a larger proportion of men who will be able to reason soundly, than four centuries ago could have been reckoned in the highest, and modern cottagers will soon be better instructed than feudal chieftains ever were. Yet there are who view this dissemination of instruction with apprehension, and suppose that it will turn the minds of artisans and labourers from their necessary employments. Neither does a comparison between the happiness and misery, the morality and vice, of the instructed and uninstructed districts at home and abroad—a comparison so much in favour of the former—destroy the prejudice. The inconveniences of all that is new are sometimes the first effects that are felt, and the most powerful instruments are those which must be used with the greatest skill. That the novelty of instruction may give some inexperi-

enced minds exaggerated notions of their own importance, can easily be imagined; but a habit of knowledge will dispel these effects. In the dead of night men grope about as they can, and avoid danger by chance or dexterity. When on a sudden the day appears they are almost blinded by it, but the hour of noon shows everything as it is. But let it be supposed that insurrection and idleness were the themes inculcated to-day, would not the hunger of to-morrow correct them? Let the husbandman throw away his plough—the weaver his loom—the shoemaker his last—would not the ills which these men would immediately experience force them back to their occupation? If imagination were to triumph for a time, and fully usurp the place of truth, the drudgery of life in these necessitous regions would soon bring back reason. Practice has shown that equality is vision, and indefinite liberty the worst of tyrannies, and sound instruction, which is but the record of practice, will teach men to avoid them. The result of education to the poor will be to teach them that there are moral hardships in this world, his share in which it is the duty of every man to endure."

Looked at from a strictly moral point of view, Chenevix was probably near the truth in his reasoning, but as he wrote in the early days of machinery, and when a sound system of elementary, not to speak of technical, education was not available for the industrial classes, he scarcely could have anticipated the educational revolution which we are now passing through. Not only has elementary education advanced and expanded in a wonderful manner, but technical education also has advanced, and is insisted upon as indispensable for the wants of the artisan. This technical knowledge is but the putting of better tools into the workman's hands, and giving him more swift and correct methods of working. A skillful man is not necessarily a more moral man than one less skilled, but he is a wiser one; and if wisdom comes through education and fuller knowledge, morality and good order are likely to be present in the person of the educated and skilled working man. A man may grow rich in the practice of his trade, as a lawyer or a doctor in the practice of their professions, though it may take him a longer time unless perseverance enable him to exchange the position of the operative for that of the employer—a position that all working men may honestly strive for, and which many are likely to attain. The best kind of education is that given with a view to the future pursuits of those receiving it, leaving the rest to the self-exertion that ambitions a higher and wider field of knowledge.

It is now many years since we visited the once far-famed "Bully's Acre"—i.e., the Royal Hospital Fields at Kilmainham. In the cholera epidemic of 1832 "Bully's Acre" was the chief receptacle for the plague-stricken, who were hurried there in hundreds. After the opening of Golden Bridge and Glasnevin Cemeteries, "Bully's Acre" was closed or discarded—indeed it was choked full long before it was closed against interments. For centuries this cemetery had been the burial-place of the poor inhabitants of Dublin. Comparatively few headstones were at any time to be seen in this extensive burial-ground, and we have been under the impression that tombstones and monuments were in past times often carted away from "Bully's Acre," like the bodies of the dead, by the Resurrection men or body-snatchers. An ancient stone or monument existed in Bully's Acre in our young days; but whether it still remains there or has been removed, we do not know. The late George Petrie gave a sketch of this stone in one of his topographical articles in the *Dublin Penny Journal*. It was a piece of coarse-grained granite, and it apparently had once in its perfect state been a stone cross, but when Petrie described it only a portion of the shaft remained. There was some sculpture on this shaft in the shape of a true-lover's knot—the emblem of eternity, but the design was scarcely legible. This old monument in Bully's Acre was called Brian Boru's Monument by the people, but it could not belong to the hero of Clontarf, whose burial place is known. Petrie sur-



mises that the monument, though not Brian's, might be that of Brian's son Murrough, or Turlough, who was slain at Clontarf. The last burial that took place under this historic stone in Bully's Acre was that of the body of Dan Donnelly, the famous pugilist, "a grate man in his day," in the opinion of many of his pugnacious countrymen.

In the construction of the Great Southern and Western Railway line, "Bully's Acre" was partly cut through, and thousands of the mouldering remains of those who had been buried for centuries were disturbed, but little outcry was made at the time. To the present generation "Bully's Acre" is almost an unknown name; but when "John's Well" was a holiday institution at Island Bridge, "Bully's Acre" was in constant remembrance for the sake of the living and the dead.

H.

### WHAT HE SUFFERED, MENTALLY AND PHYSICALLY, IN THE PURCHASE OF A HOUSE.

IMPARTED (BY WAY OF RELIEF) TO THE IRISH  
BUILDER BY BEN BULBEN, ESQ., OF SLIGO.

"Doubtless the pleasure is great  
Of being cheated as to cheat,  
As lookers-on feel most delight  
That least perceive a juggler's sleight."  
—HUDIBRAS.

FROM information received—not from the Castle-yard, but from my attorney,—it became necessary for myself and family to reside in or near Dublin, and consequently I sought my uncle's opinion as to our proceedings. "Ben," said he, "take Mary with you" (in our family the grey mare is the better horse), "advertise in some decent paper, explain your wants, and you will have lashins of answers, and long may you wave." This latter was a senile expression that the worthy soul had found in some low American work supposed to be humorous; I neither liked it nor the allusion to Mary, who on all difficult occasions was supposed to carry the brains. However, as quietness in the family has ever been my aim, I made no objection; and, leaving all our household goods to my uncle's care, we reached the city, and advertised in what I understood to be the best mediums, as I wished to purchase a small house. I had plenty of replies to choose from. We spent a few days calling on our correspondents and looking at the various premises offered, and in listening to the opinions of 'many men of many minds,' and to a man of enquiring disposition these opinions in their wondrous diversity afforded much food for contemplation.

At last I decided to take "a beautifully detached suburban residence within five minutes' walk of the tramway—Vartry water, yard, and two w.c.s" (which, I supposed, meant the two Wesleyan connexions; but, not being a Dissenter, that was of no consequence). Mary declared that the house had the orthodox number of cupboards; and such a sweet name—it was called "Coilintogle Lodge," the builder being a Mr. M'Nab, from the Land o' Cakes. For my part there was an airy lightness about everything, which I supposed proceeded from my having all my life lived in the family mansion at Carney, which was at once beavy, gloomy, and substantial. On remarking to Mr. M'Nab that I thought the walls of Coilintogle Lodge slight, he smiled in good-natured pity, and assured me thick walls were quite "gone out"—that they harboured disease, were enemies to ventilation, and, for his part, as a friend to humanity, he would never think of building a thick wall. "Wiser men than we can pretend to be, Mr. Bulben," said he, "have regulated the thickness of the walls by the dimensions of the bricks. For instance, the standard brick is 9 in. long by 4½ in. by 3 in. thick; so that it comes natural to make the outer walls of all ordinary houses 9 in., the principal partitions 4½ in., and the lighter with brick on edge, or 3 in. It is positively disgusting to see the waste of material that some are guilty of! I have seen at the Custom House Stores in Dublin

a roof made, after the fire of 1834, of timbers so heavy that it was unable to bear its own weight!" I remarked that the floor shook when I walked across it. "Ah," said he, pleasantly, "that will soon be all right; it is owing to the beautiful elasticity of the tassels, which are of the best pitch pine 6 in. by 3 in. I am sorry you cannot see them; they are superb!" Not knowing to what he alluded, and fearful of exhibiting my ignorance, I said no more, especially as Mr. M'Nab, in his pleasant way, turning to my wife, said, "I'm sure, Mrs. Bulben, you'll agree with me that gentlemen should leave all matters of household economy to the ladies." So the house was so nice and lightsome, and the proprietor so pleasant, it and my money quickly changed hands, as he was anxious to go on a summer tour, and wished a *speedy settlement*!

One Butler, a great poet, in a most laughable book called "Hudibras," or something like that, said—

"Ay, me! what perils do environ  
The man that meddles with cold iron!"

But what are such a man's perils compared to his who buys a house like mine?

Oh, it was not that glamour had flung o'er the whole  
Artistic æsthetics that diddled my soul;  
'Twas not that the waste-pipes were thin as a quill—  
Ah, no, it was something more devilish still!

I have composed these lines in positive sadness and to relieve the over-charged heart. I never attempted composition before, nor ever will again. However, the house was ours, and my wife decided that it would be cheaper (to judge from a tariff advertised) to purchase furniture than go to the expense of bringing our heavy and antiquated things from Sligo. Experience having taught me the cost of opposition, I acceded; so we very shortly had in several *somnilisticas defer*, with *lits algae au terrains sur mer*, some wardrobes with and without glass doors, and several articles which, if slightness means elegance, were indeed elegant. Will I ever forget my first shave in Coilintogle Lodge! Perhaps I was doing wrong in thinking of the "Lady of the Lake" and my wife applying "Mrs. Allen" in the next room. I was resting on my arms on the dressing-table, called by the man who sold it a *toilette*—my right elbow (funny-bone) the point *a* (as my brother Tom would say) of the angle *p*, *A*, *x*, and prepared to make a most satisfactory sweep with the razor from *p* to *x*, when, I suppose my Connaught rudeness not agreeing with the elegant fragility of the furniture, down I went, and the centre of the angle of curvature being altered, by Jove I nearly "shove" off my chin! This was a small matter to what ensued. I was told nothing could stand me. I was called a "cawboge," an ignorant Irish brute, and so on. I won't repeat all I heard; I will merely say that the capacity for impossible etymology that some ladies possess is far beyond the impossible equations of Professor Collins, or the thing-a-bobs in space of the late Professor Sir William Hamilton,—"*quadratics*," I believe, he called them.

The Irish term the first night "*meana meala*," but my first night in Coilintogle Lodge was what the Americans would call a "caution to snakes"; and, although not of a vindictive disposition, I almost wished that Patman, North, the junior Battersbys, and others interested in *house property* had been there to see, not that there was much to see, so I'll say "been there to hear." I don't know why I felt so depressed; but I hinted to my wife that I felt I had a cold, and a bit of fire in the bed-room would be agreeable. Having said "she was equal to several fires," she laughingly complied, and, calling Kitty Magriskin—an importation from home—told her to light a fire. I retired early to rest, "to sleep, perchance to dream," and for a while all went well. When I awakened after an hour or so the fire was burning brilliantly—rather too much so, as I thought the atmosphere unnecessarily warm. However, I again fell asleep, and enjoyed a tolerably good

night's rest till daybreak; but, "when morning came, it brought despair." Never could my wildest fancies have supposed the occurrence of such constructive ruin within so short a time; the carpentry had become "an hungred," every angle was a gaping mouth, every joint an orifice, the door panels had split up, and Mr. M'Nab's boasted close-jointed flooring was like a gridiron; as to the furniture, a sweet thing in birch-wood tables stood on three bandy legs, the fourth raised as if to kick off an imaginary boot, whilst the wardrobe door swung idly open, having shrunk beyond the influence of its bolt. Added to these was a perpetual rattle as if of castinets, or a domestic Christy's Minstrels bones.

To recount all the curious matters that from time to time turned up in that house, would only weary my readers; but "when things are at their worst they sometimes mend," and my uncle arrived on the scene with his faithful valet, Tom Little, or Lytle, as pronounced in Sligo. He was much pleased with the first view of my purchase, and, as Mrs. Bulben supplied a really good stock of creature comforts, I felt that day better than I had since I left the ancestral halls at Carney. Next day a critical examination was determined on, and vigorously proceeded with, Tom Lytle being chief abettor and tool holder.

It began by my telling my uncle that Mr. M'Nab said the foundations were concrete. He looked at me, and said—"Ben, I always doubt that stuff ever since Darby Toole built the pier of it. You know he had no confidence in the cement, so he mixed lime from Assawaddy Bridge along with it, and, as the pier was faced with stone from Collooney, we would have supposed all was right; but one day, in sinking a hole for a crane post, the concrete was found to have turned into brown sugar without the flavor. I sent a sample to your brother Tom, to get examined, and he said it was all on account of the sea water and phosphorus and silicate of lime and hydrocarbons with alcohol (of course), so ever since when I hear of concrete I think of dirt-pies and rubbish." "The walls of this house are very poor," said he; "and what the devil is that quare rattle?" "I cannot imagine," said I. "Tom Lytle," said he, "what's that rattle?" "Yerra," said Tom, "them's the slates; they're hung on pegs to plasterers' laths, and not rendered; they're airy and wholesome, and springing like the floors." "Oh," said I, "the floors have tassels of 6 in. by 3 in., and are elastic." "That's unusual in a house like this," said my uncle; "but we will see. Tom, rip me down this length of skirting, and rise a board." No sooner said than done, when, lo, a sight presented itself that they said was a curiosity. I am no judge, but my uncle, holding his sides with laughter, exclaimed, "Oh, Lord, what a set of samples and scantlings! Here is Irish elm, a bit of larch, an old Norway slab, deals galore, and for tassels you have a Memel slating lath 2½ in. by ½ in. I congratulate you on being the possessor of a 'Jerry' house erected on the most approved principles of that unprincipled constructor, carried out to an extent not often seen in Ireland, though common enough in England. Get rid of it for whatever it will bring—the first loss is the best. I will introduce you to-morrow to a respectable architect with a character, and, what is better, a conscience, and, by his advice, you will probably get a comfortable home, which, so far, since you left me, you have failed in."

Σ.

[This sketch of Mr. Bulben's is not exaggerated. We knew of a house, near Dublin, the erection of which was left to the honour of a certain contractor, some years dead; the wall plates were slaters' laths! Also a house in Lower Sackville-street, built about thirty years ago, the slates of which were hung with wooden pegs on plasterers' laths, and, not being rendered, perpetually rattled as described.—ED. I. B.]



# ON THE IMPROVEMENTS SCIENCE CAN EFFECT IN OUR TRADES AND IN THE CONDITION OF OUR WORKMEN.\*

THE causes of the depression in trade, which meets us on every side, it is not difficult to ascertain,—inability to compete with the foreigner in the production of what England consumes, combined with inability to trade economically in his own markets. We cannot, for example, now grow corn or rear cattle as economically as we can get them from America; so that while our land produces ten million quarters of wheat a-year, we import as much as thirteen millions, whereas thirty years ago we grew fourteen millions (more, in fact, than at present), and imported only four million quarters per annum. On the other hand, the Americans can manufacture machinery cheaper than we can sell it to them, in consequence of their high import duty of about 30 per cent. We might say that this state of things arose from their having on the other side of the Atlantic vast pasture-lands, a good climate, and Protection; while we are cramped for room, inundated with rain, and luxuriate in the blessings of Free Trade. It is not, however, only the demand abroad for English commodities that we see slowly dying away, but we find that even in our own country we are being gradually undersold in those productions which depend not on pasture-lands, not on climate, but on the use of labour-saving machinery,—the result of human ingenuity. Our disappointment in witnessing the gradual disappearance of the foreign market for our manufactures may possibly be alleviated by our belief that the example we are setting of perfect freedom in trade will be ultimately for the world's good. But no ray of consolation can cheer the remembrance that our Coventry ribbon trade, that once famous industry created by ourselves, has well nigh departed to Switzerland, in company with the silk-weaving industry of Lyons and Spitalfields. The Clerkenwell mechanic sees with no feeling of national pride the American machine-made watches pressing on his heels in the march of time. Even our trade in the bending of umbrella and stick handles is rapidly crossing the Atlantic, and several of our chemical industries are being absorbed by the Continent. And what about those devices, those Yankee notions, as we call them, in which machinery replaces the old cumbersome and uneconomical hand labour,—the sewing-machine, the type-writer, for clear and rapid correspondence; the electric pen, for superseding lithography; duplex and quadruplex systems of telegraphy, for multiplying the carrying capacity of a telegraph line; and that instrument for dispensing even with messengers, the telephone? Why, not only do these come to us now from America, but it was in that country that they all sprang into existence, with many brothers and sisters like themselves. I shall, no doubt, be answered that it was to that country that they all owed their birth because American labour is so dear, and, consequently, some means must be found to economise it. You might imagine from this there was in America a national evil,—dear labour,—and that machinery had to be devised to overcome its ill effects. But do high wages necessarily mean large selling price of manufactured goods? What foreman in this room, wishing to turn out articles well and cheaply, would prefer employing an ignorant Indian labourer at, say 2d. a day wages, instead of an English mechanic, with his knowledge of tools, at 6s. a day? So, in the same way, a highly-paid American workman may, with his most ingenious labour-saving machinery, undersell the English in their own market. One of the things, therefore, which England requires, in order to regain her old commercial supremacy, is smaller cost of production of manufactured articles, a condition of things which, I think

you see, is not at all incompatible with higher wages. In my British Association lecture to the workmen at Sheffield, this year, I have experimentally shown how an enormous economy can be effected in the consumption of coal, and, consequently, in the cost of generating power, and in the working of the metals, as well as in the expense of warming and lighting your buildings, by the employment of very large steam-engines and of natural sources of power, such as streams and waterfalls, and by conveying, through the agency of electricity, this power to the distant places where it is required to be used. For water-power, if sufficiently far away from a town, is often worth little or nothing, since the cost of conveying the work done on the spot over the hilly country to the markets more than compensates for the economy of using water instead of steam; but the waterfall, if utilised for transmitting power into the towns by electric currents, becomes much more economical than burning coal. Again, as I explained to my audience, work done by distributed power from a very large steam-engine, would be much cheaper than using a number of small steam-engines if only the power could be distributed without the great waste which always accompanies the friction of shafting, leather belts, tooth-wheels, &c. Now, if, by means of what is called a dynamo-electric machine, we convert the work done by the one large steam-engine into electricity on the spot, and convey, by means of wires, this electric current to different points, and there, with dynamo-machines worked backwards, we reconvert it into motive power, then the loss of energy by friction, &c., can with the special form of working I explained, be reduced to something like 30 per cent. At Sheffield it was the economy of utilising the present wasted natural sources of power that exist in our mountain streams that I urged on my large audience; to-night it is the utilisation of even a still more important dormant natural source of power—man's brain—that demands our close attention. It must sometimes have puzzled you why a successful professional man, one who has no manual skill, no strength of limb, earns by his work so much money, and, what is higher, so much fame. It must sometimes have struck you as, at the very least, rather hard that while you are toiling from morning to night, day after day, to gain only enough to live on, another, by the mere efforts of his thoughts, amasses a fortune. But you, no doubt, regard it as quite fair that a skilled mechanic should receive higher wages than a navvy. For you say that, although he has eyes and arms like yourself, and is, perhaps, the stronger of the two, still you can use your powers with a skill of which he knows nothing. Now, just as he has muscular strength, which, when cultivated, means wealth to himself and his country, so you have brain power, which only requires education to fit it to do useful work. But you will say, am I not forgetting that you have all been to school, and have received an education at least as good as is given in the Board schools? Consider, however, what is taught in these schools, where masses have to be educated. Is there time to teach reflection, to foster the reasoning power? Is there that training given you which should make you unwilling to follow any special routine method in your trade, unless you are convinced it cannot be improved on? And can you expect it to be otherwise, when the boys and girls leave at twelve or thirteen years old,—when the main object of the teacher, who is paid by results, is to cram the young until they are heavy enough to drop through the examining machine,—when occasionally the teaching is necessarily confined to the three R's solely because the Government inspector finds that other subjects are—well, a little beyond his limited attainments? Again, what is the feeling boys and girls have at the National Schools? If they succeed in their lessons, they look forward to becoming pupil-teachers; but if prizes do not fall to their share, they feel that teaching is not for them, and fall back on a trade; but how

very few, if any, ever look to their studies as a means of making them educated workmen, instead of mere copying machines! The consequence is that, when a lad is first apprenticed, he is merely an errand-boy, or fag, being fit, in fact, for little else. Subsequently, he is posted in one of the departments of the manufactory, his instructor being a man under whom he works; but this man, having his own work to attend to, has not time to teach, and, even were it not so, he could only show the boy the manual operations. When the piece of work on which the apprentice has been engaged is finished, it has to pass the foreman of the department,—generally a man who, through honesty, sobriety, and manipulative skill, has risen from the ranks of the workmen, and whose education has been of a character similar to that of those around him. The foreman's duties, of course, leave him no time,—even if he were competent,—to give instruction, and thus the lad goes on, probably working, quite mechanically, at only one small branch of his trade. In time, he becomes a journeyman; he may become a foreman, to govern others. Thus, the "rule of thumb,"—i.e., each man working as his shopmates do,—proceeds, and thus ignorance of principle has been carried on from one generation to another. And things go on remaining very much as they are, merely because we have never seen them otherwise. The man or woman, then, instead of becoming an agent far above any machine,—in that there should be the possession of the reasoning power, which is a quality of no machine,—frequently finds him or herself, mentally, infinitely inferior to Babbage's calculating engine; bodily, quite unable to work with the accuracy and speed of, say, an automatic lathe for turning gun-stocks; and, from having a knowledge of only one narrow department of one restricted industry, is quite at the mercy of the fluctuation of trade for the means of subsistence. . . . Let a man but acquire the art of learning one subject properly, and the groundwork of his education is to a great extent completed, since he will naturally afterwards be always seeking for knowledge from books, from teachers, from nature, in all these branches which at any time, may be of importance to him. It is of much importance that a correct notion of the real aim of education should be impressed on you to-night, when we are here to inaugurate the commencement of that wide scheme of technical education which the City and Guilds of London have, after mature deliberation, generously seen fit now to enter on. In the future we hope to have special classes for a variety of technical subjects, and we shall look to you, guided by your own wants, to choose for us, to a great extent, what those subjects shall be; but, just for the present, we must be contented with only a few branches of technical education. . . . Magneto-electricity, as you no doubt all know, was discovered by Faraday, and is one of the beautiful examples of the importance of studying elementary principles. Faraday was not a student at a university, spending money and time in learning the conventional accomplishments of a gentleman, but he was the son of a blacksmith who had, by hard work, to earn his own living. Faraday knew that motion could produce electricity with the ordinary glass electrical machine, and that the electricity so produced could, in its turn, set up motion, as in the pitch-ball telegraph worked by Sir Francis Ronalds. He knew that difference of temperature could produce an electric current, and the electric current could in its turn produce heat or difference of temperature. Consequently Faraday felt sure that, since an electric current can produce a magnet, a magnet must, in some way, be able to create an electric current. But his attempts were baffled time after time; failure, failure only, was the result; yet buoyed up with hope, still persevering with that dogged earnestness which is the characteristic of an Englishman, he at length arrived at this all-important discovery, —to produce a current with magnet it is no

\* From inaugural lecture delivered on the 1st inst. by Prof. W. L. Ayrton at City and Guilds of London Institute for the Advancement of Technical Education.



use placing the magnet this way or that way relatively to the coil, but you must have *motion* of the one relatively to the other. When Faraday first made this discovery in 1831, I have no doubt many people thought it a very pretty scientific experiment, but not likely to be of any practical use. Yet to what a host of practical purposes has it been applied during the last forty years! We now see that the invention of the galvanic battery, such as we are using for producing the electric light in this hall, is beginning to sink in importance before magneto-electric induction; for how do we get those strong currents to produce the electric lights of the present day on the Thames Embankment, Waterloo Bridge, or nearer still, in Aldersgate Station? By magneto-electric induction. How do we get these sparks with this Ruhmkoff's coil, which enables us to imitate lightning on a small scale, and so to devise by experiment lightning-protectors for our telegraph lines? By magneto-electric induction. We might go on multiplying indefinitely examples to prove that a *general* knowledge of elementary principles is of the greatest importance to every man, whatever be his trade. George Stephenson, but a coal-miner, and yet the practical inventor of the present locomotive engine, understood that fully. No Institute for the Advancement of Technical Education was founded for him; no city companies lent him a helping hand; and yet he set himself to study the principles of mechanics when he had only just succeeded, with great difficulty, from his absence of leisure and instruction, in teaching himself to read and write, as he sat by the engine fire. The account of his experiments to discover a form of miner's safety lamp is a living exemplification of the rule attributed to Bacon, but, in reality, given long before by the painter Leonardo da Vinci:—"Begin with observations, go on with experiments, and, supported by both, try to find a law and a cause." Starting with his own idea that, in order to prevent fire-damp exploding, it was necessary that the gas should pass through the lamp at a certain velocity, Stephenson arrived, after many experiments, at the all-important result, discovered quite independently by Sir Humphry Davy, that wire-gauze, if the meshes are of sufficient fineness, cuts a mass of gas into two portions, one of which can be ignited without the other catching fire or exploding. And, realising so fully as he did the advantages of education, it is not to be wondered at that he strained every nerve to have his son Robert well taught, and even sent him to the Edinburgh University, where, in six months, he is said to have acquired as much knowledge as takes many ordinary students three years to learn. And why to Edinburgh University, and not to some nearer English college? Because, at that time, there was no institution where the means of a man like George Stephenson, only one step removed in position from that of an ordinary miner, could obtain even a decent scientific education. Our country has, indeed, not continued in its former state of prosperity. Years ago France, Germany, and, above all, Switzerland, set themselves the same question [the higher education of the working classes], but instead of waiting, like ourselves, for time to give the sad response, they foresaw it, and, by fostering technical education, have absorbed into their countries some of the industries of the world. The city and canton of Zurich, having once grasped that their system of national education was defective in modern practical science, vied with each other in providing funds for the complete equipment and support of a technical university. And yet another nation, small and apart from the world, a people, like the Swiss, dwelling in a mountainous country, and like them, too, dearly loving their pine-clad hills—the Japanese—have set us an example that our ambition should lead us to emulate. Much have we heard of Japanese art, much have we seen of Japanese lacquer, Japanese fans; but only a few of us are acquainted with the

Japanese modern technical education. Ten years ago a feudal country, tyrannised over by barons, with power of life and death in their hands distracted by the conflict between the rightful sovereign and their hereditary military usurper, that nation whom we regarded as barbarous, that nation of whose manners we were comparatively ignorant, whose very modes of thought are so different from our own that we can hardly be said to understand them now,—that people had but three years emerged from a state almost of slavery, when up grew, in its very midst, a technical college, with a staff of carefully-chosen English professors, with its laboratories, its class-rooms, museums, libraries, and workshops, costing Japan,—a poor country, be it remembered,—at least £12,000 a year to support, and many thousands to build. And to enter and study at this college neither money, nor position, nor any qualification is necessary, but ability and desire to study; so that working at the lathe, or conning over their books in the class-room, or experimenting in the laboratory, may now be seen, side by side, the young noble and the young artisan. An example to emulate, did I say? The city companies have given us the opportunity; let us show that we appreciate it. They do not propose merely to teach each man his trade or business, for that he can best learn in the workshop or counting-house; nor have they any idea of merely grounding you in elementary arithmetic, since that you can learn at school; they do not start by building handsome edifices, although they have already subscribed many thousands for erecting in London a large central technical college; but what they have done is henceforth to put on one side more than £15,000 a year of their own money to give you from now that education which will enable you to commence doing what George Stephenson, in these words, half a century ago, urged on you:—"Learn for yourselves, think for yourselves, make yourselves masters of principles, persevere, be industrious, and then there will be no fear for you."

#### HOME AND FOREIGN NOTES.

**A CLERICAL BRICK MAKER.**—At the Belfast Police Court the Rev. Isaac Nelson was summoned for £1 10s., amount of poor rate. The collector having been examined, Mr. McErean, solicitor for defendant, said his client had been described in pamphlets, and also in the summons issued against him, as a "brick manufacturer." This he considered as a libel on his character, and he thought he would refuse to pay the rate. There was also great inequality in rating as compared with last year. The Mayor said it was no disgrace to be a brick manufacturer, and gave a decree for the amount.

**STEAM ON TRAMWAYS.**—The Grand Jury of the County Dublin met on Monday last to consider an application by the Dublin Southern Tramway Company to use steam power on their line between Baginbun-street and Blackrock. Mr. Joseph Kincaid, C.E., gave evidence to the effect that the engines, when properly constructed, made no noise, and there could be no objection to them. Under proper regulations, they could not be a nuisance, or affect ordinary traffic. They had been in use in Glasgow for over two years. After deliberation, the Grand Jury adopted a resolution in favour of the application.

**THE ULVERSTON SHUTTERS.**—In the race for attainment of perfection in items of articles that demand the attention of architects, builders, and the general public, we are glad to find that Messrs. Salmon Barnes and Co. are, with their revolving shutters not only holding their own, but striding far ahead of other firms who have long been before the public. They have lately introduced some important specialities and improvements as well in the shutters themselves as in the manner of fixing. The third edition of their illustrated catalogue (a copy of which is before us) shows many novel uses to which their shutters may be applied, amongst the rest to close in fire-places, with the double purpose of acting as an excellent blower for the fire.

#### TO CORRESPONDENTS.

J. R.—Several papers on the subject will be found in our back volumes.

**THE IRISH INSTITUTE.**—We print some of the letters we have received, suggested by the report of the proceedings of the Institute, published in our last issue. We leave the matter for the present in the hands of our correspondents. Let them thresh it out, or rather thresh something practical and useful out of it if they can do so.

**SANITARY.**—Read the paper on "Bad Plumbing" in present issue. Bad mortar and brick are bad things enough, but bad sanitary appliances, and scamped plumbing would make the best built house a most unhealthy one to live in.

**A CARPENTER.**—In the works of Price and Paine several good examples of framed roofs will be found, and, if we remember aright, also in the Irish work by John Ahern. This old treatise, published in Dublin about 1759, is now very scarce, and seldom to be met with. Riddell's works (American) on carpentry, and his treatise with cardboard models on Stair-Building and Hand-Railing are procurable in London, and are, on the whole, very good treatises, and simple, clear, and practical.

**T. C.**—You will find what you are looking for in Thom's Directory.

**TOLKA.**—The "classic" stream has of late years become a very filthy one between the Waterfall in Richmond and its outlet at Annesley Bridge. Let the Drumcondra Township take a note of it. The chief causes are obvious.

**RECEIVED.**—A. S., Corofin (in our next); D. J. C., Cork (will reply in a few days); F. P., C. D., M. D., Artisan Dwellings Schemes; S. S., LL.D. (thanks); R. H. A., W. R. S., London—A Provincial Architect (to hand); C. E., Cork—J. M., P. P., &c.

#### TENDERS.

For building a new barrack and station for the Dublin Metropolitan Police, at the corner of Store-street and Talbot-place; and for taking down old buildings and removing the materials. We give the names of contractors in alphabetical order:—

Beckett ..	£5,000	Nolan ..	£4 240
Carolin ..	4,600	O'Hare ..	5,155
Connolly ..	4,570	Pemberton ..	4,690
Cornack ..	4,648	St ..	4,700
Fitzpatrick, Bros. ..	4,500	Stubbs and Brodigan ..	4,380
Gahan ..	4,700	Tyrell ..	4,556
Hammond ..	4,775	Tighe ..	4,880
Jackson ..	4,158	Wardrop ..	5,150
Kelly ..	5,250	Worthington ..	5,928
Meade and Son ..	5,050	?	4,157
Murphy ..	4,950		

—General Anzeiger.

#### NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.*

#### RATES OF SUBSCRIPTION TO IRISH BUILDER.

(Town.)	s.	d.	(Post.)	s.	d.
Yearly	6	0	Yearly	8	0
Half-yearly	3	0	Half-yearly	4	0
Quarterly	1	6	Quarterly	2	0

Payable in advance.

*\*\* Stamps may be remitted in payment of small amounts.*

*Post Office Orders and Cheques should be made payable to Mr. PETER ROE, 42, Mabbott-street, Dublin.*

#### WILLIAM ROBERTSON AND CO., ENGINEERS, MILLWRIGHTS, BRASSFOUNDERS, &c.

Seville Engineering Works, Sheriff-st., Dublin.

Have for Sale several Steam Engines, of own design and make, nearly complete. Improved Water Heaters, of our corrugated shell pipe description, and also those of the open cistern class, which heat the feed water up to about 200 degrees with exhaust steam. Have always on hand ready, the several descriptions of Robertson's Unit Safety Valves, for testing safety valves and pressure gauges, on high pressure steam boilers, and double ones for kitchen back boilers; they are simple and safe, and not expensive, nor liable to get out of order.

Band Saws for fixing on wooden pillar, with 3 ft. 6 in. square faced up iron tables, and 3 ft. or larger pulleys.

Improved Hydraulic Rams of a new design, the first, a 3-in. one, is working on its fifth year without ever stopping or requiring repair, certified to be raising 300 gallons of water 70 ft. high per hour, through a long discharge pipe. A 5-in. one erected at Railway Station, Maryborough, throws over 1,200 gallons per hour.

A pair of Launch Engines and Boiler, also a new horizontal Launch Tubular Boiler, 6 ft. 3 in. by 3 ft. 6 in. Please apply for references, &c., for any of the above.

Repairs to steam and other Machinery promptly attended to. Prices moderate, and workmanship first-class, or such as may be required.

#### LEADED WINDOWS.

#### LEADED SCREENS AND PANELS

For Churches, Schools, Screens, Door Panels, Staircase Windows, &c.,

Made in Plain Sheet Glass, Cathedral, Tinted, Sheet, and Rolled, and Richly Coloured or Stained Glass.

Estimates free

**T. Dockrell, Sons, Martin, & Co.,  
WINDOW GLASS MERCHANTS,  
41 St. George's-street, Dublin.**

Experienced workmen sent to all parts to take templates, measurements, and fit up the work.



**IMPERISHABLE TESSELATED PAVEMENTS.**—H. SIBTHORPE AND SON, Agents to Maw and Co., are prepared to supply Designs for Floors of Churches, Conservatories, Entrance Halls, and Passages, with proper Workmen to lay them in any part of Ireland. Various specimens may be seen at their Warehouses, 11 and 12, CORK-HILL, DUBLIN.

**POOLEY'S PATENT WEIGHING MACHINES.**—These Machines are used upon the principal railways of Great Britain, and are unrivalled for accuracy. Specimens may be seen, and every information obtained from H. SIBTHORPE AND SON, 11 and 12, CORK-HILL, DUBLIN.

**UNION PLATE GLASS COMPANY.**  
The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.  
H. SIBTHORPE AND SON, Agents for Ireland, 11 and 12, CORK-HILL, DUBLIN.

**HYDRAULIC Engineering, Plumbing, and Gasfitting.**—We are extensively engaged as Sanitary Engineers, and guarantee that the details of work will be scientifically carried out under personal and efficient supervision. Estimates free.  
BROOKS, THOMAS, & CO., SACKVILLE-PLACE, DUBLIN

**London Portland Cement.**  
KNIGHT, BEVAN & STURGE.

**THE** Subscriber has discharged the following Cargoes best London Portland Cement of the above eminent firm, which manufactures only the best article with sealed ties, in bags and casks.  
"Alfred," 180 tons, May.  
"Ocean Maid," 175 tons, June.  
"Walter Ulrick," 188 tons, July.  
"E. Fisher," 182 tons, 1st August.  
"Desdemona," 165 tons, September.

Now discharging in Custom House Docks. Testimonials from the Engineers of the United Kingdom, Continent, &c., as to quality, where it has been used for a number of years, viz.:—

J. W. BAZALGETTE, C.E., London.  
1. and T. STEPHENSON, C.E., Edinburgh.  
J. COOK, C.E., Isle of Man Harbour Works.  
B. B. STONEY, C.E., Dublin Port and Docks.  
LUCAS BROS., London Contractors.  
J. N. DOUGLAS, C.E., Trinity House, London.

**CITY SAW MILLS,**  
66 and 67 THOMAS-STREET,  
JOSEPH KELLY.

**WHITE BRICK.**  
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## THE IRISH BUILDER.

VOL. XXI.—No. 479.

THE  
LIFFEY AND DUBLIN HARBOUR—  
PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.

FIFTH PAPER.

THE construction of the embankment or wall running out from the Clontarf shore towards Poolbeg Lighthouse, appears to have been a long cherished idea of the Ballast Board; and, notwithstanding the several plans and reports submitted from time to time for the further improvement of the port, the Ballast Board clung to the scheme of the Great North Wall, believing that it would constitute the most complete and efficient work towards the improvement of the navigation. The paper of Mr. Griffith furnishes a clear account of the sundry schemes projected by different engineers eminent in their day, for the improvement of the harbour, from the commencement of the present century, until at last in 1820 the Ballast Board, after great delay and many disappointments, were enabled to carry out the work of the Great North or Bull Wall, which has proved since its completion of such signal advantage to the port.

In 1800 the Directors-General of Inland Navigation, when applied to for funds, feeling the want of further information respecting the harbour, instructed Captain Bligh to make a survey of the bay, showing the depth of the water in the river and upon the bay,

and giving all the other necessary information on tides and currents, &c.. Anyone acquainted with the history of the harbour, or who has examined the maps and surveys in relation thereto existing previous to the present century, must know that a really reliable survey was one of the wants of the time, and was indispensable before further works of improvement were determined upon. Bligh's survey is on a scale of 4 in. to one Irish mile, and in the opinion of Mr. Griffith it is the first survey of any real value of the river and bay. Mr. Rennie who was subsequently consulted, and projected a scheme for the improvement of the harbour was fully conscious of the value of Bligh's work and the accuracy of his surroundings about the bay, for he checked them for his own information shortly after the survey was made.

From Bligh's survey it was found that the bar extended in the form of a hook across the entrance to the river, the deepest or south channel being between the lighthouse and the point of the hook, where there was 8 ft. in depth at low water of spring tides, while in a direct line seaward across the bar there was only a depth of 5 ft. Mr. Griffith explains in a note that Captain Bligh's datum is not accurately defined, but it was probably in extreme low water, like the Ordnance datum for Ireland, which is 1.43 ft. below Mr. Giles' datum. According to Captain Bligh the depth of the water in the south channel of the bar was greater than almost any other part of the harbour, that in fact as regards navigation no bar existed. Bligh's attention was therefore turned to the improvement of the channel up to the city, and he recommended a wall should be built along the north side of the channel from the east end of the north quay wall as far as Poolbeg. The width between the north and south walls at Ringsend was to be 700 ft., increasing to 2,000 ft. at the lighthouse. Had this work been carried out the Liffey in appearance would have been continued as an embanked river to Poolbeg. Bligh's object in the construction of this north wall was to confine the waters of the Liffey and the Dodder to their legitimate channels at all states of the tide, and prevent them from spreading over the north or Clontarf strand. He also hoped to gain the advantage of the upland waters for the purpose of keeping the navigable channel free from deposit, while, in addition, the sand brought down by the Tolka from the northern strand could no longer be carried into the channel. By confining the flood tide to the channel Captain Bligh calculated its velocity would be increased, and the introduction of a corresponding additional volume of tidal water up the river between the quays. Bligh considered the defects of the old channel were attributable to the irregular line of the Great South Wall, and he specially found fault with the projection of the Pigeon House basin into the channel. Here we think he was right, although the evil may have been a small one; but obstructions of all kinds to the free ebb of the tide in such or similar situations are to be condemned. Bligh proposed to continue the north wall of the Pigeon House basin westward. Although he expected the construction of the northern wall would increase the efficiency of the river in tidal waters, and their keeping the channel free from deposit, he appears to have acknowledged that it would have little effect in deepening the

channel by removing existing deposit. Yet if it effected the former we think it would effect the latter, to some extent at least, in process of time. To remove existing deposit Bligh recommended the immediate employment of 350 men and 50 barges to dredge the channel systematically, under careful supervision, and that this work should in any case be commenced whether the construction of the wall was undertaken or not. In these latter recommendations Bligh has given sound advice, and the work of the Ballast Board from Bligh's time down to the present is a confirmation of the usefulness and necessity of systematic dredging in the harbour of Dublin. As late as 1846 the Tidal Harbour Commissioners referring to Bligh's scheme, observe:—"Had Bligh's suggestions in 1801 been acted upon at once Dublin Harbour would probably have been in a better state a quarter of a century ago than it is now." As the work of improvement was not carried out in accordance with Bligh's suggestions, it becomes necessary now to look at the improvement of the harbour from other points of view, and see and acknowledge if we can whether a greater and more lasting improvement has not been effected at last through the operations of the Ballast Board and its legitimate successor the Dublin Port and Docks Board. It may be that Dublin has reason to feel exceedingly proud that Bligh's continuation of the north quay wall was not continued on to Poolbeg despite the conclusions of the Tidal Harbour Commission in 1846. In 1846 the Great North or Bull Wall at Clontarf had only been about twenty years completed, but upwards of half a century has now elapsed, and its effects for good or evil in the future navigation of the port can now be pretty fully estimated.

Bligh's scheme appears to have met with considerable favour, and his proposed wall was considered by many as the improvement most suitable. The Directors of the Inland Navigation recommended its construction in their report to the Lord Lieutenant, and the subject was referred to Sir Thomas Hyde Page, who commanded the Royal Engineers in Dublin at the time. He approved of the proposal on the ground that "it possibly might, by confining the flood and the ebb tides to a certain channel, cause deeper water between the bar and Dublin, and also through the south and east channels" of the bar. He counselled great caution however, so as not to extend the wall too far into the bay, lest the sand should accumulate on its south face in the same manner as it had already on the south side of the great south wall, thus forming a far more serious bar across the river entrance than existed at the date of his report. The most curious part of Sir Thomas Hyde Page's report, viewed in the light of present-day appearances and accomplishments, is his recommendation that part of the bar should be raised with old hulks, fascines, and stones, above high-water level to form an island. The "submerged sea beach" of Mr. Griffith, or a part thereof, would by Sir Thomas Hyde Page's scheme be once more raised above the waters—an invisible bar transformed into a visible one. Certain advantages, however, were claimed for this Bar Island by its projector, who had an eye, perhaps, to building a fort or a Martello tower upon it for the future defence of the mouth of the harbour.

Whatever might have been the occult con-



siderations on the part of Sir Thomas Hyde Page and his friends, the public only knew that the advantages claimed for the construction of this island were, that it would afford shelter to the harbour entrance and Poolbeg in easterly winds, and tend to produce increased depth of water in the bar channel. This northern wall was estimated to cost £168,000, and the works on the bar, including a lighthouse, £78,000, making a total of £246,000. Here would have been an expenditure of nearly a quarter of a million of money for works which at best were but hazardous experiments, and for which even their projectors would not promise more than a partial improvement to the harbour when completed. There was a certain boldness in them, however, but as far as the construction of the northern wall went, it would only have been a piece of engineering in imitation of the south wall. Captain Bligh's and Sir T. H. Page's scheme (1800, 1801) is very distinctly laid down in the plate accompanying Mr. Griffith's paper, and it is well worthy of examination by all who are interested in the history of the improvement of the harbour of Dublin.

The Ballast Board towards the end of 1801, at the request of the Directors-General of Inland Navigation, forwarded a statement in support of their scheme for the formation of the Bull Wall, otherwise known as the great North Wall, in contradistinction to the North Quay Wall or the proposed wall of Bligh and Page's schemes, which would in fact have been a continuation of the North Wall Quay. The Ballast Board stated that they looked for the preservation and improvement of the harbour, to the admission of the largest quantity of tidal water, and to the reflux of this water properly directed. They felt convinced that the upland waters of the Liffey and the Dodder would not in themselves suffice under the most favourable circumstances to effect this object. They pointed out that the Liffey was unable to cleanse the narrow channel through the city between the quays, and that most of the city sewage was deposited in the channel above Ringsend.

By the construction of the wall it was urged that the north side of the harbour would receive similar advantages to those conferred on the south side by the completion of the Great South Wall, shelter from easterly winds, and the stoppage of the encroachment of sand from the North Bull; while the formation of a deeper channel across the bar would probably result from the ebb being directed through the contracted entrance at Poolbeg, instead of expending its energies over the North Bull. These, according to Mr. Griffith, were the views urged and held by the Ballast Board. Moreover, the Board claimed for their proposed wall that it did not run counter to nature beyond what was absolutely necessary. "They stated that their aim was to assist nature, as far as was practicable, where its efforts appeared to be usefully directed, and that they expected, on the completion of the northern wall, the two great piers of the harbour would afford mutual protection, and that their joint action in improving the bar channel would be much greater than could result from either singly."

The Ballast Board, however willing to support nature by supporting and carrying out their own pet scheme, was fated to be still further delayed in their work; and, no doubt, looking back at the history of the

improvement from our present standpoint, this delay proved useful to the Board.

After receiving the statement from the Ballast Board, the Directors-General next sought the advice of Mr. Rennie, whose scheme we will now pass under notice.

Rennie was of opinion, after reviewing the labours of his predecessors towards the improvement of the harbour, that "from the little good that has been produced by the extensive works already executed in improving the depth of the water on the bar at Dublin Harbour, I cannot say I have any very sanguine hopes of much good being produced by any works which can be added at a moderate expense. The scouring away of bars is but an uncertain operation at best, and can only be done by bringing additional water to act on them, or conforming the action of what water there is to a narrow channel." His recommendations, which will be immediately seen, constituted a grand scheme, at least from a financial point of view, though in part it lacked the essentials of an efficient one, or one likely to prove an effectual and enduring piece of engineering in connection with the harbour. His first recommendation comprised almost the favourite idea of the Ballast Board, which that body eventually carried out:—"1st. To build a pier from near the Spit Buoy of the North Bull to the Clontarf shore, about half a mile east of the sheds [of Clontarf], leaving an opening of about 500 yards between its head and the south pier. 2nd. To embank the South Bull so as to enclose about 1,300 English acres, statute measure, and to make a large opening in the south wall, near Ringsend, to admit the tide into this space or reservoir. 3rd. To make low jetties on the flat shore from the channel towards the Clontarf shore, to direct the water as well on the south as on the north side to the ship channel in one course, and both in the first quarter of the flood and last quarter of the ebb, when its scouring power is the greatest."

The combined capacity of the northern and southern reservoirs was estimated by Rennie at 36,000,000 tons of water at spring tides, and by the formation of the northern pier this large body of water was calculated would ebb and flow through the contracted entrance at Poolbeg. Notwithstanding the providing of this great quantity of water, and with the additional assistance of dredging in the bar, Rennie was still of opinion that no greater permanent increase than 1 ft. in depth of water could be expected. This, it must be confessed, using the words of Mr. Griffith, would have been a small result for the estimated expenditure of £252,384. If any greater depth was to be hoped for, both the northern and southern piers would have to be extended eastward, and consequently Rennie was prepared to advise their extension. He believed an increased depth of 3 ft. might be obtained if the northern pier was extended 1,100 yds., and the southern pier 800 yds., the dredging of the bar to be at the same time proceeded with, and continued till after the completion of the piers. These extensions, and the works connected with them, were estimated at £403,408, bringing up the amount to be expended upon the improvements to the sum of £655,872. Here would be a sum considerably over half a million to effect what, even in the opinion of the projector, would constitute a very small improvement—an improvement, let us add, entirely incom-

mensurate with its great cost. Certainly, if 8 or 9 ft. of water could only be obtained on the bar at low water of spring tides by the outlay of such a large sum of money, it would have been a most wasteful expenditure, even other considerations apart; and on the whole it is well that the work was not carried out in accordance with Rennie's scheme. The next proposition of Rennie, though feasible, and looked on with favour both before and after Rennie's time, would have been another great waste of money, and could never prove a permanently successful piece of engineering. He saw, as others saw before him, the necessity that existed for providing a permanent deep-water entrance to the port; and he concluded that such a result might be obtained by the formation of a ship canal from the city to some point on the adjacent coast. The idea of a ship canal was not a new one, for it was proposed very early in the century by Captain Perry, who advocated the construction of a canal along the north shore of Sutton, or through the isthmus at Howth to the site of Howth Harbour. Though Perry's scheme met with opposition by the port authorities at the time, there was a strong outside voice in favour of it, and the advocacy of the ship canal again and again cropped up throughout the eighteenth and down till some years after the first quarter of the present century. Three sites were suggested by Rennie for the deep-water entrance—Sutton, on the north side of the bay, and Sandycove and Dunleary on the south, the latter site being that of Kingstown Harbour, and the one preferred by Rennie, who was supported in his opinion by Captain Huddart, to whom he referred the question from a nautical point of view.

The estimate for the construction of this ship canal and a harbour at its entrance was £489,734. Mr. Griffith remarks at this point, and we give his exact words:—"It is not very clear from Mr. Rennie's report whether his intention was that the canal entrance should entirely supersede that by the bar, or whether it should only be used by vessels of large draught. If the former, then there can be but little doubt that Dublin as a port would have been greatly injured had his proposal been carried out." In either case, we think, a great injury would have been inflicted upon the port, but in the former case the injury would have been most disastrous, because it would be of a permanent character, and long, long years might have elapsed before the evil could have been remedied. Mr. Griffith's remarks on this head are to the point:—"The necessity of sailing vessels engaged in the coasting trade having to be towed through a long circuitous canal from Kingstown to the city would virtually have been prohibitive to the great extension which has of late years taken place in this particular branch of the trade of the port. Another point should not be forgotten, that almost all the costly work already constructed with a view of improving the river entrance must have been abandoned, and the large sums of money expended considered as so much money wasted. If on the other hand, the canal was only to be considered as an adjunct to the river entrance, to be devoted merely to large vessels, then it appears more than probable that the cost of maintaining the double entrance would have been too great a financial burden on the revenue of the port." Captain Bligh, as quoted by Mr. Griffith, seems to have held the same opinion,



for his words are:—"I impress it strongly as a principle, that a canal and the Liffey would destroy each other, as both would be too burthensome to keep up, and that the general bias would at last go in favour of the latter." There cannot be the least doubt now on this head. At the same time it must be allowed that the condition of the harbour in the beginning of this century, and the difficulties that presented themselves, and which it was necessary to overcome by one scheme of improvement or another, rendered it no easy task to plan a scheme of harbour improvement that would meet with general acceptance. The *pros* and *cons* appeared in a somewhat different light to our fathers and grandfathers than what we can imagine them, and we are enabled to draw conclusions because certain events are in our favour to that end. Rennie was a clever engineer of his day, but his ship canal would have been a great mistake, and eventually a great failure. The following extract from Hely Dutton's "Observations on Mr. Archer's Statistical Survey of the County Dublin," 1802, will show that the project of a ship canal was favourably viewed, and advocated by those who spoke on behalf of the people and public improvements. A canal from Dalkey to the Grand Canal Docks, and another from Sutton, have been for some time spoken of as likely, at no remote period, to be carried into execution. Of their usefulness there can be probably but little difference of opinion; and, from the reports of very able engineers, we have every assurance of their practicability. Every storm adds but too melancholy testimonies of their necessity, although the sums necessary for this stupendous work must necessarily be large, yet surely it ought not to weigh a moment with a great commercial nation; they will be highly useful in bringing labour to a level, which the war has long diverted out of its channel, and which, without something of this extensive nature to settle it, might subject us to all the evils attendant upon idleness."

As late as 1834 the improvements in the harbour of Dublin appeared still so small to some minds, and so slowly advancing, that the project of the ship canal was partially revived and discussed. In this year was published—"A Glance at the Question of a Ship Canal connecting the Asylum Harbour at Kingstown with the River Anna Liffey at Dublin," &c., by Henry E. Flynn. Some of the newspapers of the day supported the scheme of a ship canal, and a Select Committee of the House of Commons looked on the proposal with favour. But we are anticipating events, and have yet several other matters to notice in connection with the improvement of the harbour during the first quarter of the present century as well as subsequently.

#### THE ARTISAN REPORTS OF THE PARIS EXHIBITION OF 1878.

THE reports of the deputation of artisans to the Paris Exhibition, organised by the Society of Arts, are now published in one volume running to 650 pages. Separately published parts at 6d. each are also being issued, whereby workmen or others interested in special industries, can procure whatever reports interest them most.

The subjects have been collected and classified so as to reduce them to eleven heads:—1. Pottery and Glass (2 parts); 2. Art Workmanship; 3. Mechanical Engineering; 4. Agriculture and Horticulture; 5. Building

Trades; 6. Cabinet Work; 7. Watch and Clockmaking, Jewellery, and Optical Instruments; 8. Printing; 9. Textile Fabrics; 10. Leather and India Rubber; 11. Mining and Metallurgy. We may be enabled in next issue to speak of some of the reports which are more immediately connected with building industries or cognate to them. Several of the reports are well written, and some more are specially valuable and interesting. We fear that they will not at the present hour receive that degree of attention which they merit. Although their publication appears, in the opinion of some people, to have been somewhat delayed, not a little time and trouble have been expended in preparing them for the press, for there have been nearly forty subjects written upon by as many reporters. Whether the present state of the public mind is conducive or not to a calm and practical discussion, and a serious consideration of the state of British industries in contrast with those of foreign nations, the time has certainly arrived for such consideration, and these reports, unlike much of the political writing of the hour, will not be out of date in a week or even a year. The Society of Arts has at least done its duty, and enabled the skilled workmen of the British Islands to register their opinions on the condition of handicraft in the industrial arts at home and abroad.

#### CITY IMPROVEMENTS.

THE south side of the city is, it appears, to receive the lion's share of attention in the way of new streets and buildings. We have had already marked out the Boyne-street area, the Coombe area, and now we have the Plunket-street area, to be dealt with under the Artizans' Dwellings Act. At a meeting of the Corporation Mr. E. D. Gray moved the adoption of an "improvement scheme" for the Plunket-street area, and it was carried by a majority of 30 votes. The cost about £15,000.

At same meeting a resolution was passed authorising the formation of a new street, to open up the approach from Great Brunswick-street to the new (and as yet nameless) swivel bridge. The cost is estimated at only £20,000. It would have been wise if this work had proceeded simultaneously with the erection of the bridge. Some few rotten rookeries will here also, of necessity be demolished.

In close proximity to the New Cattle Market on the North Circular-road, it is proposed to erect an abattoir on a large scale (to be used by all the butchers in the city), at a cost of about £20,000.

#### THE MONOPOLIES AND THE MUNICIPALITIES.

##### THE GAS, WATER, AND TRAMWAY SERVICES.

SEVERAL English corporations, having already purchased the gas and water services, and are managing them with great profit to the ratepayers, are proceeding a step further. The Liverpool Corporation have just resolved to purchase the tramways in the town for £30,000, subject to a seventeen years' lease to the tramways company, at a rental of 7½ per cent. on the cost of rails. The Liverpool Corporation had hitherto done an act worthy of praise, and which ought to find imitators on the part of wealthy corporations. It bought up the wretched "Jerry" property in the town, for the purpose of improving it off the face of the earth, having taken steps, at the same time, through stringent building regulations, for preventing the further erection of dwellings or houses of the "Jerry" class. We have some corporations, however, in our midst, both in this country and in England, who, while pulling down hundreds of old fever-breeding rookeries with the view of clearing sites for artisans and labourers' dwellings, are allowing streets of new "Jerry" houses to be erected quite as unhealthy in construction and surroundings as

the ones they are clearing away. The poor in several directions are being driven from the heart of the city into the unhealthy dwellings which some of the municipal improvers have prepared, and are preparing for them. Some of our so-called industrial dwellings, put up by artisans' dwellings companies, are nearly as rubbishy a class of houses as those which are being erected by private and individual building speculators.

There is need in Dublin just now, as well as in the sister kingdom, to watch the action of some of the pretending public improvers, who have their interests hedged around in local boards and public companies. The practices of some of these so-called representatives of the people are altogether incompatible with their position as municipal representatives, town commissioners, and poor law guardians—guardians of the poor! forsooth. Pshaw! bah!

#### BOOKS RECEIVED.

*A Digest of Cases Relating to the Construction of Buildings—The Liability and Right of Architects, Surveyors, and Builders in Relation thereto, &c.* By Edward Stanley Roscoe, Barrister-at-Law. London: Reeves and Turner, Chancery-lane. 1879.

THIS little work will be found an exceedingly useful and, indeed, a valuable one to all connected with the architectural and building professions in Ireland as well as in England, notwithstanding some conflicting decisions in building cases. The substance of this digest appeared recently in the pages of our contemporary the *Builder*, but Mr. Roscoe, in its published form, has added to its usefulness by additions, comprising an appendix of forms of pleadings, building agreements, and lease and conditions of contracts. There is scarcely any case incidental to architectural practice and building operations but are covered by the decisions given in this digest, and where notes or explanations are necessary they are furnished. Whatever architects may require to know—and some of them often forget much,—there is every necessity for builders in general knowing more than they do in respect to their rights and liabilities. For a very small cost this little book, we have no doubt, would enlighten many builders and contractors who are living from year to year with their illusions undisputed, and, as a consequence, always running a danger that could be safely avoided. The digest contains all the cases which have up to the present been decided in respect to the erection of buildings. The following words, from the author's preface, fairly indicate the scope of the work:—"There are, of course, many decisions which affect building contracts, and duties and rights of architects, which are not strictly what may be called building cases, although the legal principles contained in them are applicable to this subject. But in nearly all the decisions which follow some matter connected with building was directly involved. Any one who is, therefore, professionally interested in this subject, whether as a lawyer, architect, or builder, will be able, within a small space, to find any point arising out of building operations, which has hitherto been decided after argument in court." As regards the author's hope that the notes which accompany the cases will make the legal points clear to business men, there can be little or no doubt on that head. An exposition of the law in regard to building cases was long called for, and this Digest, which is cheap and handy, and valuable as a reference and authority, supplies the want. We will most likely refer to this work again, to cite illustrations of the law in connection with building contracts, works, labour, and materials. Some of the decisions given in Mr. Roscoe's work are very suggestive, and others strange, though undoubtedly good law, are safe to observe. In the meantime, we again cordially commend the work to our building constituency in this country.



*Plumbing, House Drainage, &c.* By W. P. Buchan; Second Edition, revised and enlarged, with 300 Illustrations. London: Crosby Lockwood and Co.—We are glad to receive a copy of a revised edition of Mr. Buchan's book on "Plumbing," &c., and which reaches us as we go to press. We hope shortly to look closely into it. It is published by the Messrs. Lockwood as one of "Weale's Series," at the low price of 3s. 6d.

*The Journal of the Royal Historical and Archaeological Association of Ireland*, No. 38. April 1879. Dublin University Press.—Amongst the contents of this part are a description of a megalithic structure near Sligo, by E. T. Hardman; and a description of White Island, Lough Erne, by W. F. Wakeman. Both papers are interesting.

*Eason's Almanack and Handbook for Ireland.* Dublin: W. H. Smith and Son.—The seventh annual issue of this work is replete, as usual, with valuable tables and information. The compiler is not satisfied (as many before him have been) with hashing up year by year the same old stereotyped dishes (or plates.) We invariably consult the contents of each succeeding issue, and always expect to find something new under the cover of the now familiar "green book."

### "JERRY" HOUSES.

In a report on the general state of the Public Works in the city, dated March, 1869, the city engineer, Mr. Parke Neville, C.E., wrote:—

"I have, on several occasions, called attention to the great want that exists in Dublin of a Building Act and building surveyors, as provided for in London, &c. In the bill proposed to be sought for last year, building clauses, copied from the Metropolitan Building Acts, and carefully revised by the Royal Institute of the Architects of Ireland (who memorialised the Corporation in their favour), were introduced, but, unfortunately, in the hurry of the moment, and from other causes, to which it is unnecessary for me to allude to here, there was much misunderstanding as to the nature of the office of building surveyor."

The "Jerry" builder tribe had ten years ago been pursuing their nefarious malpractices. Mr. Neville wrote:—

"I may mention that in a newly-built house I had to visit within the last few days, I found joists 3 in. deep by 1½ in. wide, used to support a floor of 12 ft. span—of course it was like a spring-board, and cannot last long. The builder will probably sell the house (which in all other parts was equally flimsy), and what a precious bargain the purchaser will get! This would not be allowed if there was a Building Act in force."

Almost weekly appear advertisements and posters of "Capital Investments—993 years' lease." Houses "Built to Sell and—Kill!" We have lately made an inspection of scores of such houses, to which hereafter the doctors' visits will, we opine, not be "few and far between." One house on Jones's-road, finished last year, and let for a few months of present year, would require a screw-jack or an under-pinning on the boggy ground. The roof of another a year old requires a slater and carpenter already.

### LABOUR LEGISLATION.

THE Parliamentary Committee of the Trade Union Congress have announced the following programme for the session of 1880:—

1. To amend the law of compensation in cases of accidents, so that workmen or their families may recover from an employer, in the event of injury or death from accidents due to negligence.
2. The codification of criminal laws.
3. Reform of the jury law by lowering the qualification for jurymen, so as to admit a large number of workmen to the discharge of the important duties of jurymen, thereby preventing the necessity of men serving as jurors so frequently, and providing reasonable payment for loss of time; and the consideration of the bill on the question, prepared by Mr. Henry Crompton.
4. The extension of the Employer and Workman Act, 1875, to British seamen whilst in British waters.

5. The desirability of increasing the number of factory and workshop inspectors.
6. Reform of patent laws.
7. Abolition of imprisonment for debt.
8. Certificates of competency for men in charge of steam engines and boilers.
9. Reform of land laws.
10. The assimilation of the county and borough franchise.
11. The extension of the hours of polling.

The last three questions were added to the programme by a resolution of the Congress. An excellent report of the proceedings of the Congress in Edinburgh during the autumn has been issued by the Parliamentary Committee, which will be found specially interesting to workmen of Great Britain and Ireland who are interested in trade questions, and all legislation bearing upon the present and future of labour from the workman's point of view, and their friends in Parliament and outside.

We may repeat here, for the information of Irish artisans, that next year's congress will be held in Dublin.

### THE G. P. O.

'Tis always the same at the G. P. O.,  
There's no one to blame at the G. P. O.  
My letters are late,  
And are marked "OVER WEIGHT,"  
But that is their game at the G. P. O.  
Full three times a-week at the G. P. O.  
For justice I seek at the G. P. O.,  
And when I wax warm  
They hand me a form,  
Through which I must speak at the G. P. O.  
My cheques are oft lost through the G. P. O.,  
Whether open or crossed, through the G. P. O.  
They cannot be traced,  
They're cashed in such haste  
By Old Nick or Fanst in the G. P. O.  
Her Majesty's Chief in the G. P. O.  
Can't find out the thief in the G. P. O.,  
But hopes he'll soon trap  
The light-fingered chap  
That's causing such grief in the G. P. O.  
Still covers drop off in the G. P. O.,  
Nor Cocker nor Gough in the G. P. O.  
Can count how much stamps  
Are filched by the scamps  
In the service thereof of the G. P. O.  
And still I may swear at the G. P. O.,  
But still they declare at the G. P. O.  
They suffer no pause  
In search for the cause  
Of loss that I bear through the G. P. O.  
'Tis certain folks rob in the G. P. O.  
By day and by job in the G. P. O.;  
But thief or the thieves  
Still laugh in their sleeves,  
And 'scape to the mob from the G. P. O.  
The service is grand of the G. P. O.,  
The best in the land is the G. P. O.,  
Then "God save the Queen,"  
Though robbed I have been  
By "Her's to command" in the G. P. O.

H. C.

Over the Water, Nov. 25, 1879.

### PROPOSED FREE LIBRARY, MUSEUM, AND SCHOOL OF ART, CARDIFF.

THE following replies to queries have reached us on the above subject:—

1. The reference library and reading-room are intended to be two rooms, and could be obtained by dividing off a portion of the library space by a glass screen to afford greater quiet for readers, or for the use of lady readers; the main portion of the library being used by general readers, with books all around, and above with a light gallery. Prominence to be given to this library.
2. Lending library to be quite distinct from reference library, and the librarian's room is to be separated from the lending library.

3. Newspaper and periodical rooms are two rooms.

4. The number of class-rooms for each sex must depend upon the space at command. The master of the School of Art would furnish information on probable number of pupils, &c., and the librarian as to number of books. The lecture-room is for class lectures only.

5. The height of 50 ft. is stated to be to top of cornice, and would not include parapet above. Roof will, of course, rise above the 50 ft., and space be utilised in the height of rooms.

6. The levels of the ground are shown in figures on the block plan, and the ground in churchyard on north side is throughout on the same level as footpath at each end.

7. There is a main sewer in centre of each street, and is 15 ft. below surface.

8. There are very good red face bricks made here, and plenty of excellent flat-bedded grey sandstone (penman rock), rich deep red conglomerate stone, Forest of Dean, and freestone at moderate cost, and very excellent terra cotta dressings.

9. No encroachment for area can be made in churchyard on north side, but light may be obtained above ground line throughout the north side of site. The remaining portion of south side, between the 30 ft. reserved at each end, is available for light from 10 ft. above ground line.

10. Pavement lights (prismatic) may project 18 in. from face of buildings, and be housed in the thickness of the wall for lighting basement.

11. The church is 70 yds. from north side of site.

12. Architects competing should first comply with the general lines laid down by the committee in the printed instructions, and, if they wish to suggest other arrangements or conveniences for the different floors, should embody them in an alternative plan.

13. No architect will be called in to advise in the selection of the designs.

14. The sum of £8,000 does not include gas pendants, but would include all service pipes, and would not include fittings for books, which would be considered furniture.

[We do not think the commissioners have either funds or space at their disposal for their requirements. To light the basement, which is to contain a modelling school, and apartments for the housekeeper, with prismatic pavement lights projecting (*sic*) 18 in. from face of buildings, is simply absurd. The 13th clause will scarcely be received with favour by the profession, nor will it aid in securing really good plans. Why did they not carry out this project in June, 1869?—Ed. I. B.]

### MESSRS. BRUNTON AND CO.'S WAREHOUSE.

WITH this number we give a view of the new furniture warehouse recently erected in Henry-street for Messrs. William Brunton and Co. In a former issue of this journal will be found a lengthened description, to which we beg to refer our readers.

### PATENT SYSTEM OF GLAZING.

By reference to our advertising columns it will be seen that Mr. T. W. Helliwell, of Brighouse, Yorkshire, has introduced to the notice of the Irish public his patented system of glazing without putty—a system which, from its simplicity and comparative economy, is almost certain to receive attention here. The patent is a great improvement on all the old systems of glazing and covering in of glass roofs. By an ingenious arrangement of the glass it is made to fit close in each square of woodwork, which is thus entirely covered, and the roof is perfectly air and watertight. The glass being simply fastened with metal clips can be removed at times for cleaning purposes, and replaced with ease in any weather. The patentee states that he can supply horticultural buildings, inclusive of iron and woodwork, and ventilating and opening apparatus, with 21 oz. glass and three coats of paint, at fully 25 per cent. less than ordinary prices. Mr. Helliwell announces that he will, upon application, send (free of charge) a representative to explain his system to any gentleman or firm.



## THE PROTECTION OF ANCIENT BUILDINGS.

A MEETING of the Committee of the Society for the Protection of Ancient Buildings was held last month in London, to consider the proposed total destruction and re-building of the west front of St. Mark's, Venice, and to take steps to prevent, if possible, such an act of Vandalism from being perpetrated. The chair was taken by the Hon. Percy Wyndham, M.P., and amongst those present were—Lord Houghton, Mr. E. J. Poynter, R.A., Mr. Holman Hunt, Mr. A. W. Hunt, Mr. E. Burne Jones, Professor Richmond, Slade Professor at Oxford; Professor Bryce, Mr. Ingram Bywater, Mr. F. W. Stephens, Mr. William Morris, Hon. Sec. of the Society, in calling attention to the urgency for decisive action on the part of those interested in the preservation of this beautiful work, stated that a commission would sit in the course of this month to decide whether the rebuilding of the west front should be begun immediately, or whether it should be allowed to stand over for another twelvemonth. Lord Houghton, Professor Richmond, Professor Bryce, Mr. Poynter, and Mr. Holman Hunt having spoken, it was resolved that a memorial should be framed, to be signed by all lovers of art in this country, for presentation to the Minister of Public Works in Italy, praying that the destruction of this, in many respects almost unique specimen of art should not be allowed to take place.

While agreeing with the society that it would be an act of Vandalism to destroy St. Mark's, by a process of rebuilding that would almost obliterate the old structure, yet we think that the society would find an ample field for their labours at home in the British Islands. From Cromarty to Cornwall, or even from Liverpool to Land's End, right and left, there are at the present hour sundry so-called architectural "restorations" proceeding which are little less than downright acts of Vandalism. Has the society got tired of preaching homilies to deaf-eared and brute-force civil and ecclesiastical building committees at home? If not, let them rush to the rescue, and preach in thunder-tones the stoppage of the supplies. While the funds are subscribed by weak-minded ladies and weak-kneed gentlemen, dogmatic churchmen will rule the roast. Committees have heads—at least the members individually composing them have—but it would seem in many instances that have come under our notice that the heads were all screwed to one ecclesiastical or clerical neck, and that this neck could turn all the heads in whatever direction it pleased. Now we are among those who would like to see all of our cathedrals and churches worthy of preservation, kept in proper repair, and, where absolutely necessary, rebuildings and additions; but against the modern and present-day craze of church "restoration" we protest with all our might. Rectors and curates, for some years past—whether the churches they were attached to were good or bad specimens of Gothic architecture, or old or new—have been getting up the same cry, and the pulpit is made use of in the most lively way to urge the formation of a "Church Restoration Fund."

Structures not fifty years' old, and of the most barbarous Gothic, have been repaired or, bless the mark! "restored" and "beautified." The plain, simple facts are—that some ordinary repairs were needed, and, as was right, the local builder or so-called architect executed the work. On the other hand, fine old parish churches have been injured for aye by the so-called "restorations" carried out; but as funds were subscribed by the "faithful," work had to be shown for the money, and, as a wind-up, there was a dinner or festival, at which there was much self-glorification and praise all round by the building committee, who were all apt members of the local Mutual Admiration Society.

The Society for the Preservation of Ancient Buildings have, we repeat, an ample field for their labours at home; and without being hypercritical or illogical, as in some

instances they have been, they can do useful work in the interests of archæology and architecture.

## THE SANITARY INSTITUTE AND ITS EXHIBITION.

THE exhibition of sanitary appliances which remained open for a week after the proceedings proper of the Congress of the Institute at Croydon, was closed on Saturday evening the 8th ult. A final meeting of the Congress was held in the Public Hall, at which there was a crowded audience of the working classes. Dr. B. W. Richardson presided, and read a brief paper entitled, "Health and Home." He observed that those who were engaged in forwarding sanitary work might labour their lives out, and still do little service until they could get each home, however small it might be, included in the plan of their work. The river of national health must rise from the homes of the nation. He was glad that ladies had been specially invited to that meeting, because women were always at home, as men were always abroad, and the woman who was at home must be the continuous and natural guardian or ward of the health that should centre in the home. If they could get wives and mothers to learn the habitual practice of all that tended to health, sanitarians would soon have an easy victory. He wished, after many years of experience and observation, to tell them what seemed to him to be a few golden rules for securing health at home. In the first place, whether the home be large or small, he would say, "Give it light." There was no house so likely to be unhealthy as a dark and gloomy one. In every point of view light stood forward as the agent of health. A few hundred years ago it became a fashion, for reasons it was very hard to divine, to place sick people in dark and closely-curtained bedrooms. The practice, to some extent, was continued to this day. When a person went to bed with sickness it was often the first thing to pull down the blinds of the windows, to set up dark blinds, or, if there be Venetian blinds, to close them. On body and soul alike that practice was simply pernicious. It might be well, if light was painful to the eyes of the sufferer, to shield the eyes from the light, or even shut the light off them altogether, but for the sake of that to shut it out of all the room, to cut off wholesale its precious influence, to make the sick room a dark cell in which all kinds of impurities might be concealed day after day, was an offence to Nature which she ever rebuked in the sternest manner. In sickness and in health—in infancy, youth, middle age, old age—in all seasons, for the benefit of the mind and the welfare of the body, sunlight was a bearer and sustainer of health. Dr. Richardson next adverted to the subject of sleep, and observed that artificial lights were very injurious. The few hours after dark that were spent in artificial light the better, and the sooner they went to rest after dark the better. . . . It was foolish, too, that public writers and editors should be called on to exercise their craft at a time when all their nature was calling out to them "rest." He might be accused of folly in saying these things, but he was standing by Nature and speaking under her direction. Turning next to the question of beds and bedrooms, the president insisted on the necessity of a separate bed for each person, and said the bed should be neither very soft nor very hard, whilst the furniture of the room should be as simple as possible. A daily bath with cold water in the summer and tepid water in winter was necessary to the health of every person. Every effort should be made to maintain an equal temperature in the house—a temperature of 60° Fahr. being the best—and there should be a system of complete household cleansing once a year. He would leave his colleagues to descant on ventilation, good food, good air, and other accessories to health, and though by their united efforts

they might not essay to lead them direct to Salutland and its hundred years of happy life, they would take those who would go with them a long way towards even that promised commonwealth of health and long life.

A paper on "Health in the Young," by Mr. E. Chadwick, C.B., was read on behalf of the author, who was too ill to be present.

Afterwards followed a number of short addresses, occupying a quarter of an hour each, and on the whole well calculated for their purpose—that of conveying sound instruction to the working classes present on sanitary questions. Among the papers were:—"Health and Good Air," by Captain Douglas Galton, C.B.; "Mistakes About Health," by Professor Corfield, M.D.; "Health and Good Food," by Professor De Chaumont; "Pure Water," by Professor G. J. Symons; and "Lessons Taught by the Exhibition," by Dr. Alfred Carpenter. Some remarks were also offered by Dr. Strong, of Croydon, and Dr. Lorry Marsh, ere the proceedings closed of what has proved to be from its commencement a successful and satisfactory Congress, and Exhibition of Sanitary Appliances.

## ADVERSARIA HIBERNICA,

### LITERARY AND TECHNICAL.

THE work of the "handy-man" is generally very inferior work, for "handy-men," as a class, are men who have never regularly learned any particular trade. The "Jack-of-all-trades" is more or less a botch, for no skilled artisan of any particular trade has need in these countries to become a "Jack," though he may in his old age eke out a livelihood as a jobbing hand. A certain class of people—householders and traders, too—are very partial to "handy-men," and, if they can procure them, will never employ a regular mechanic, unless the work they require to be executed is extensive, and above the grasp of "handy-men." Some of these very traders are found sticklers in their own trade for the highest prices; yet, when they need the services of a building workman for a small job, they will not call in the respectable builder or the equally respectable operative mechanic, but will hunt the neighbourhood up in quest of the "handy-man." If a door has come off its hinges, the plaster around the door frame broken, the glass in the fanlight smashed, the drain choked, the kitchen chair or table needing a new leg, or some screwing and glueing, the "handy-man" is thought capable of accomplishing this and much more. From the kitchen and scullery sinks to the slates and gutters on the roof, the "handy-man" is considered by many folk the only man requisite. Indeed sometimes in the same person is combined the chimney-doctor and the sweep, and, as he does his job so cheap, he is considered a blessing to some householders. A workman at 2s 6d. or 3s. a day, and who can do a bit of everything is, of course, more acceptable to many folk than the skilled carpenter or bricklayer, plumber or painter, who rarely trenches upon a brother workman's business, unless in a trivial matter. When the family goes to the seaside for a month or six weeks in summer, see how cheap and handy it is for pinchbeck gentility to hand over the repairs and cleaning down of the house to the "handy-man." With a few more "handy-men" like himself the "handy-man" in chief makes short work of the repairs. New paper goes on the wall, the ceilings are white-washed, the sashes are painted, *i.e.*, daubed, and putty galore is used, particularly in connection with any mending or repair in the way of joinery. The family come home at last, and find all the repairing, painting, and charring done, and the bill is so moderate that it covers a multitude of sins and defects. Had Messrs. Goodcraft and Son been called in they would certainly, thinks my lady, not charge less than £50 for the work, but Mr. Bundoon's bill is less than half that sum. "Really, George dear," quoth the economical



wife to her loving consort, "it is madness for people to call in these big builders, while one can get their houses done so well and cheaply by such men as Mr. Bundoon."

The family are not more than a few days back in their suburban villa, when a plumber has to be called in, the "handy-man" and his employes who did the house being too busy elsewhere in putting another house in order. The plumber finds the gas pipes leaking in different parts of the house, and the gutters on the roof are letting in the rain. One w.c. will not act at all, and in the end it is found necessary to take up several yards of flagging in the back yard to free the choked drain. Thus plumbers, bricklayers, and labourers have to be employed from a regular building firm. The following week the carpenter and joiner's services are required, as the sashes will not work, and the doors will not shut. The paint feels as if it would never dry, and the colouring stuff on the walls where dry is coming off at the least touch, and sticking to the hands and clothes. The undoing and redoing of the work of the "handy-men" costs considerably more by the end of the year than double his contract, which the amiable lady of the house considered so moderate! Possibly she thought what she could save her dear husband in repairs would go a good way towards sparing his pocket in the purchase of the newest fashions in dress and millinery. The "handy-man," however, turned out a bad investment, besides bringing much bad health and a long doctor's bill.

*Apologies to the above, to a "handy-man,"* pure and simple, no objection can be made. A handy-labourer is a useful man in the field or in his own home, and a craftsman of any particular trade is handy, *i.e.*, skilled, when he can work well in all branches of his trade. This handiness, however, is of a far different character than that assumed or claimed for men who are called "Jacks-of-all-trades,"—men who never learned any trade, but who have picked up a little knowledge of three or more trades. In new colonies or settlements abroad, the "handy-man" might usefully fill a gap, but at home his work can only be acceptable to those with little taste and discernment, or who are from their position unable to pay a fair price for the work they require. We would be sorry to prevent any honest man from earning a livelihood; but in justice to the building profession and legitimate building workmen it is necessary to distinguish evils from benefits.

If a house is badly built in the beginning, and comprises bad materials and workmanship, it can never be kept in a good state of repair, and certain it is that the efforts of "handy-men" in connection with such houses is simply money thrown away. To allow, on the other hand, a "Jack-of-all-trades" to work his will in the painting and repair of a well-built house is something akin to a criminal proceeding. For every shilling the landlord or owner may save in the first instance by employing "handy-men" in building repairs and jobbing work, he will have to spend as many pounds in undoing the work that has been done. An owner or tenant ought to be as careful of the condition of his house as of his own personal health. They both are so intimately connected that by suffering an injury being done to the former you endanger the existence of the latter. Cheap work is not always necessarily bad work, but cheap building work performed by men who are not regular or skilled craftsmen, is the dearest possible kind of work. If a man wants legal advice he goes to a solicitor instead of a scrivener; and if very ill he will call in the doctor instead of the druggist. Asking any ordinary man for his opinion is one thing, but acting on his opinion is quite another. Any handy house-owner or tenant may drive a nail, or put up a shelf, or do other trivial jobs without injury, but he would not be so foolish as to use a hatchet right and left in woodwork requiring repair in his drawing or bed rooms; yet hatchet work is the character of some chopping work that is often performed by "handy-men," for most

of them are incapable of sharpening the tools they use, much less of using them properly. In London there is a class of men called "three-branch hands" who perform work at plumbing, painting, and glazing, or act otherwise as plumbers, gasfitters, and glaziers, but these have long been combined trades in London and other English towns, and the workmen that do the work in large firms are not of the "handy-men" class, commonly called.

In Ireland, however, the plumber is a plumber and seldom more. The painter in Ireland is mostly a paper-hanger and glazier also; but, unlike London, in Dublin and over Ireland the carpenter and joiner are one and the same. In Dublin the carpenter who puts up a roof is equally ready at general inside joinery work; but in London the carpenter keeps to heavy work, such as floors, partitions, roofs, &c., and the joiner to the sashes, doors, and their trimmings, &c. The Irish carpenters and joiners, and the English provincial joiners are more general hands than their London fellow craftsmen, for they can do work rough and smooth, and act either as carpenters or joiners, according as a job may turn up anywhere to their advantage. We fear the decline of the apprenticeship system of late years, particularly in England, in the building and kindred trades, has done a deal of injury, and has led to a class of workmen who have not half learned their respective trades, and who, as a consequence, perform much of the inferior work that is so rife. A workman that is but a poor hand at his trade is forced to take less wages when he is employed, and when employment is scarce he is obliged to eke out a livelihood by jobbing about as best he can. Several men of this class drift among the number called "handy-men," but, poor fellows, they are very unhandy men, and are truly "spoil-sticks." The desire for cheap labour has been carried too far in a wrong direction, and charlatans on every side, instead of supplying good labour at a reduced price, have supplied bad labour and bad material. Thus we have "Jerry" building and "Jerry" furniture manufacture. Jerryism is not confined to one or two trades, but has become general of late years. Jerry has become the "leading man" of the period, but his reign will anon collapse, like that of other impostors. His patrons are, to be sure, still numerous, but they will find out to their great grief yet, and before they are done with their housekeeping, that a good article is always the best, though it may be a little dearer in the beginning. A skilled workman would be ashamed to put a badly-executed piece of work out of his hands, but a bad or pseudo workman cannot for the life of him do good work, even though he is paid for doing it. This is the main difference between the regular artisan and that proverbial botch named the "handy-man."

*Re Rath,* and early stone building in Ireland, the late John O'Donovan, in his notes in explanation of "Cormac's Glossary," informs us of the authorship of the extract which we annex. He tells us that the remarks are found at the beginning of a fragment of the Brehon Laws, formerly in the possession of Sir John Seabright, Bart., but now in the library of Trinity College, in the handwriting of one Thaddæus Roddy, a gentleman well skilled in Latin, Greek, and Hebrew, and a profound Irish scholar:—"As for forts [being] called Danes' Forts, it is a vulgar error; for these forts called raths were entrenchments made by the Irish about their houses, for we had no stone houses in Ireland till after St. Patrick's coming, A. Christi 432, the fifth reign of Laogarry MacNeill, and then we began to build our churches of stone; so that all our kings, gentry, &c., had such raths about their houses; witness Tarah Rath, where kings of Ireland lived, Rath Crogan," &c.

Rath is an Irish word, and, as the Annals of the Four Masters and other annals prove, it was in use long before the arrival of the Danes, to whom the erection of many of our

raths have been attributed by Ledwich and others who did not know the Irish language. Numerous towns and places in Ireland commenced with the word "Rath," and several in the vicinity of Dublin, viz., Rathmines, Rathfarnham, Rathenny, *i.e.*, Raheny, &c.

II.

## ON TENDERS AND CONTRACTS.

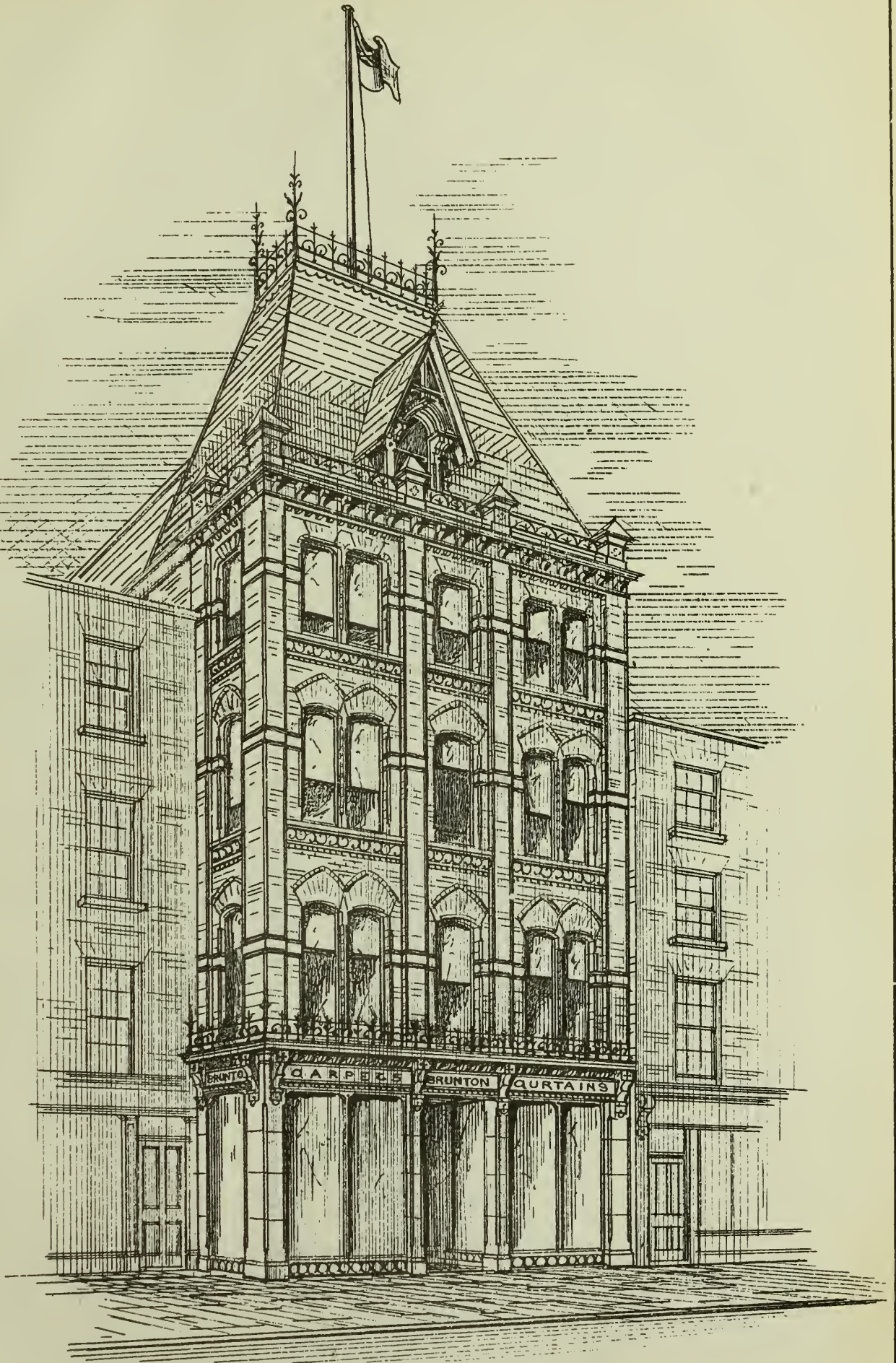
To the people composing such a peculiarly mercantile community as ours, the regulating of the machinery of tenders and contracts is of the greatest consequence, and too much weight cannot attach to the gratifying fact that, whether for works or materials, the distribution of the business of supply is in the hands of men who, like Cæsar's wife, are above suspicion.

The course usually pursued by public boards is to open all tenders when the full board is sitting; a note is taken of the amount of each, all are then either decided on or given to a committee or an officer to report on, and the decision is seldom or never questioned; but it sometimes so happens that the tenders embrace several matters which it is usual to include under one heading, and which are too numerous and voluminous for disposal at an ordinary board's sitting, and the duty then devolves on a responsible officer to prepare an abstract by which the board at its next sitting can arrive at a glance at the name of the most desirable party or parties. It will be at once evident that there is in this system much room for favouritism, to call it by no harsher name; and it is difficult to see what guarantee the public can have of their proposals being treated with the desired privacy. We are proud indeed to think that so seldom has it transpired that the honour of the comparing clerk or officer was not sufficient for the safety of the public interests.

But human nature has unfortunately its salient points, and it is quite possible, that whilst priding ourselves on our probity in these islands, a story we have heard from Bagdad may not be wholly supposititious. It appears that a certain board of Eyonbides, with benevolent proclivities, sought various tenders from parties willing to contract for alphabetical tin-plates, pictorial pocket handkerchiefs, Uncle Tom's Cabin, Moody and Sankey's hymns, and a host of matters which were all grouped under different headings, and excited an active and close competition. The mollahs composing the board were not men who could brook being detained in a heated atmosphere, especially as the fetid river ran beneath the verandah, and a supposed faithful calendar was given the papers to classify and compare, abstract and report on. This had occurred for many years; indeed it is not known exactly when it originated—some say it was with the caliph Ztanton,—as the public records of that department are not kept in a manner conducive to research, nor is the date at all requisite for our purpose. The faithful calendar appears to have been a man of some clerical ingenuity (grandson of a Dervish), and, although not even his enemies could accuse him of being a Christian, he obeyed, although in a perverted manner, the parable shewn in the 16th chapter of the Gospel by St. Luke, especially the 6th and 7th verses.

His system, which we publish, believing it to be hitherto unknown in these kingdoms, where it will no doubt be read with the horror it deserves, was to go to a likely native and say—"Oh, worthy Scheich Ibrahim, oh, father of she-goats and young asses, thy tender for juicy guavas and oyster-bearing mangroves is nearly the thing, and a trifling alteration in each item will obtain for you the contract, by which you will acquire not only wealth, but the envy of thy neighbours. My old friendship for you will cause you to sit in the high seat; and I will bring you the papyrus to alter as I will tell you, and so secure you in the contract; but I have to keep up certain rank, to visit the divan, where kibobs of savory and expensive meats are served, and many outlays are





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mine; therefore, lend me, I pray you, thirty-five toman, which I will repay thee on the eve of the vigil of him that Christian dogs term St. Tib." Then the venerable merchant replies—"These ancient optics would behold thee in the lake Asphaltus first"; and the faithful calendar goeth back as he came, excepting that on his way he meets a more obliging merchant, one Ali Cogia, who, grateful for his offer, lends him the thirty-and-five toman, as does also a vendor of horologes in same bazaar, who gives him and his watches "tick." But no more at present. The *verdent* merchant has ere this found his mistake, and no doubt the seller of guavas, tin tacks, and soft soap, will lay the whole affair before the mollahs in a neat and comprehensive way that they will likely understand, and the faithful calendar may find himself some fine day in what sailors call a *hawes* hole. Happy indeed should the British merchant be that such a thing could not occur here—in fact the smallest hint at its possibility would cause such an enquiry and examination of all the clerks on oath as has not occurred in these kingdoms since 1863. When Yliero, called the toothless, was under a suspicion of debt and allowed to retire, his name having appeared more than once in a certain dark record; and a rumour having spread that, like the calendar of Bagdad, he was in the habit of levying black mail and not paying his debts, though promised to his creditors on the night set apart to commemorate the elongation of the body of the departed appropriator Larri.

Although as yet not having an agent in Bagdad, we are well aware that the *IRISH BUILDER* is studied there with much attention; and, should this meet the eye of the faithful calendar, we would recommend him to regard it as a word to the wise. *Verbum Sat Sapienti*. And to the seller of annual supplies we would suggest in future to send privately a copy of his tender to some good-natured Khan, one of whom is to be found on every board all the world over, which course would effectually keep his proposal from being tampered with.

\*

#### TOWN REFUSE AND LAND RECLAMATION— WORK FOR THE PEOPLE.

SEVERAL years have passed since we first urged upon the Dublin Corporation and other town councils the utilisation of the tram lines during the small hours of morning for the removal of scavenger and other refuse. We also advocated the using of the canals in the districts they passed through for conveying the city refuse to the country for agricultural purposes. Several town boards in England, both in the metropolis and in the country, have since utilised the tramways for the removal of refuse, and others have made use of the canal service through the instrumentality of the barges. The Dublin Corporation adopted the suggestion respecting the tram service, and have obtained the requisite powers in the tramway acts in relation to Dublin, but up to the present moment our city authorities have taken no steps to make use of their powers, and thus save the city a considerable yearly expenditure in the removal of refuse, and the consequent gain otherwise, by the sale of what is a valuable agricultural manure. The Glasgow Town Council, like shrewd Scotchmen as they are, are applying the city refuse to the reclamation of waste lands. On the invitation of the Health Committee, a numerous company visited Houston Moss, Renfrewshire, on the 28th October. The Corporation have obtained a lease of this stretch of land for thirty-one years, and are at present engaged in its reclamation. Over the Moss a railway has been laid, and by this means the refuse from the city is distributed over its surface. The operations, which give employment to a considerable number of men, have already resulted in the taking of about fourteen acres, which have this year yielded a good crop of potatoes.

There is plenty of land in the vicinity of Dublin available for reclamation, and there are hundreds of hands idle who could not be more fitly employed at present than at works of reclamation. We are positively sick of hearing motions and resolutions discussed and carried, and yet year by year is allowed to pass, and no practical work is done. Artisans' dwelling schemes are very good, but the Corporation will not or cannot build new houses, though they have the power of pulling down hundreds of old ones. Employment for the people is a first necessity, and even in this direction the Corporation could do not a little were they resolved to do it. The general and domestic system of scavenging that at present exists, and for several years has existed in Dublin, is a disgrace to our city. We have pointed out what could be done, and what is being done by other corporations and local boards; and no valid excuse can be shown for Dublin not doing what Glasgow and other cities and towns are doing at a large saving, and with great profit to the ratepayers and the country.

#### CONSUMPTION OF OIL IN LIGHTHOUSES.

BEING asked our opinion by several of our subscribers, the lighthouse and lightship keepers on the coasts of Ireland, as to an official document issued to them on 26th September last, we have obtained the assistance of the highest authority we know of, who has placed at our disposal his unpublished volume on that and similar subjects of a kindred nature. We quite agree with one veteran "that the issue of the document was in very bad taste in the face of the information hung in every lightroom on the coast, and bearing the signature of a gentleman whose memory will be 'green' as long as a lighthouse stands in Ireland." He knew more of the matter than is likely to be known by his successors, and had experience of rapeseed oil from the first gallon burned in a lighthouse lantern; and no document issued from any source can impugn the diagrams made by him at the request of the Irish Lights Board, however official jealousy may contend to the contrary. The printed form bearing date 26th September, 1879, is erroneous in quantities, at the same time that it is sufficient; the scale for a 3-wick burner is simply laughable, and the 20 galls. a-year for private consumption is most liberal, as, allowing an average of five hours for the nightly burning of a small lamp, 15 galls. would be ample; but this relates to rapeseed oil, and there is nothing in the table to shew what oil is meant. There does not appear to be any memorandum as to the abominations termed mineral oils, if we except the reference to the position of the shield above the wick and shoulder of chimney. There is no scale for temperature, or barometric indications; nothing to shew a keeper that from the hygrometric nature of the hydrocarbon rubbish he is given to burn; two gallons in a foggy November night will fail to give a light equal to three quarters of a gallon in a dry March atmosphere.

This is a matter of great public importance, and cannot be regarded from too high a stand-point. It is not of a nature to be dealt with by a mere foreman of buildings; it requires all the resources and education of the experienced engineer who has made lighthouse optics his study. A class of man well known and prized in every country in the world, excepting England and our own; here we had the man and allowed his services to be dispensed with to please some one in high quarters, and the result is shewn in the tabulated memorandum before us, evidently prepared from averages made by some one who probably knows enough of a trowel or jack-plane to find their uses problematical, and a place in an office where etymology is not essential, and optics simply a thing that "no fella can understand," much to be preferred.

In the exhaustive work on lighthouses we have been favoured with for perusal, the

data for mineral oils are most interesting, as is the correspondence on the subject with M. Le Coq, of the Holland Government, and MM. Reynaud and Alard of the French Department; but, however generous the author, we could not think of prematurely giving publicity to statements that must have cost in their compilation much of anxious and serious research, without any of that hope of reward that is said to sweeten labour, he having in a former publication experienced the most flagrant treatment,—not the less cruel because unmerited, or the less severe from its ignorant official source (of course, as the old adage says, "keen wit and razors hurt the least"). We shall always have a space at the command of the lighthouse service, and in the present instance are glad that the tabulated statement sent us, though stupid, is in favour of the keepers' maintaining a good light with rapeseed oil.

If the publication of the document is not to be taken as an excuse for any keeper burning (*sic*) a poor flame, why publish it at all? Surely the keepers know more about their business than a mere office clerk, or navy officer, who might know a binnacle from a poop lantern, but nothing whatever of the matter in question. There is no data to shew to what class the one-wick burner belongs, whether 4th, 5th, or 6th dioptric or Irish or English catoptric—in fact it is a wretched thing to issue from any office, public or private, and should be at once called in and remodelled.

#### THE NEW STREETS AND THE OLD ONES.

UNDER the provisions of the Public Health (Ireland) Act, the Corporation, as the urban sanitary authority, propose to take certain lands and premises, stated "for the purpose of making a new street from Great Brunswick-street to Townsend-street, and of widening, opening, enlarging, and improving the streets known as Shoe-lane and George's-street East, leading from Townsend-street aforesaid to George's-quay, opposite the new swivel bridge to Beresford-place." This new thoroughfare, if proceeded with, will prove one of great public utility, we think; but we are not quite certain but the line laid down could be greatly improved upon. Both from College-street and Westland-row, two oblique lines of communication with George's and City-quay, could be usefully established. If ever attempted they should be constructed straight and wide. Indeed there has always been a want of more wide and direct thoroughfares between the line of Great Brunswick-street and the south quays. For upwards of half a century Townsend-street and the other off-streets lying between it and the river, have gone rapidly down, and decay and neglect have been mournfully visible in this quarter of the city. Townsend-street, in the last century, and the earlier part of the present, was an important thoroughfare, and contained a large number of wealthy inhabitants, merchants, and traders. By opening a wide approach to the new swivel bridge, we think Townsend-street and vicinity will be much benefited. There are many haunts, we fear, of sin and wretchedness out and about Poolbeg and South Gloucester-streets, and sanitary improvement is urgently called for in these places, both in the large streets and the small.

There is another new street, but it is so many years talked of, the project has become an antiquated one—we allude to the long proposed new thoroughfare leading directly from Dame-street to Christ Church-place. Castle-street, lying between the two former ones, is one of our oldest and most historic of our city streets, but, like Townsend-street, it has gone rapidly down during the last quarter of a century. The houses are old and dilapidated, and, bad as some of them look in their street fronts, the backs of a number of them are still more shocking and wretched-looking. Though wealthy bankers, merchants, and traders, have for



some years deserted Castle-street, it is still a populous thoroughfare, and it needs only widening and rebuilding of the houses, and a less steep approach than the present position of Cork-hill admits, to make it again a prosperous business street. We suspect there has been a considerable speculation of late years in city and commercial circles regarding Castle-street, its house property, and the future sites that will be available for building purposes. Owners of property, and purchasers of old property in this locality have been a long time in sanguine expectation of handsome compensation, and some of these gentlemen have been indirectly, if not directly, urging the opening of the new thoroughfare for their own personal ends. Well, perhaps, as human nature is constituted, they are not to be blamed for their intense anxiety, but it would be more decent on their part to hold their tongues. Whether a number of men hunger for compensation or not, a new thoroughfare is a public necessity in this locality, and the Corporation should as soon as possible commence operations. We are certain that the new Castle-street, when opened and built upon, will prove a great public improvement, by facilitating traffic, and bringing back to the locality much of the trade and prosperity which belonged to it in former years.

### PUBLIC (RELIEF) WORKS IN IRELAND.

SOME drainage works on the line of the Shannon have, we understand, been determined upon by the Government for the purpose of mitigating the distress which undoubtedly exists in some districts through want of employment, and through the failure of the crops. Our readers are already aware that several schemes have been proposed by different engineers for the drainage of the Shannon, but, owing to one cause or another, have not been proceeded with. The new drainage operations will be carried out under the auspices of the Irish Board of Works, and will probably be conducted or supervised by one or more of the staff in the engineering department of the Board. We trust that no such mistakes will be made on this occasion as were made in the relief works of 1847, when much useless work was performed and more badly executed, while incapacity in several directions was to be witnessed on the part of those entrusted to direct and supervise others. We are not disposed, under present circumstances, to say which scheme for the drainage of the Shannon would be the best. We may remark that Mr. Bateman, C.E., made a survey, and recommended a scheme estimated at £300,000. The Government at the time, now some years ago, proposed to give half of the above sum if the adjoining landlords contributed the other half. This scheme was dropped, after some evidence and inquiry, some landlords arguing that Mr. Bateman's scheme would have removed all the floods, and consequently deprive the meadows of the advantages of the fertilizing deposits due to flooding. Looking at the matter in this light, there were several of the landlords more inclined to sue for compensation than contribute to the cost of drainage works. We are told that the intended scheme differs entirely from that of Mr. Bateman, and that its cost will be comparatively small. Under this scheme the lands will still be flooded in winter, and relieved during part of the spring, and all the summer and autumn. We do not say that the plan about being carried out will effect these ends, but we are told, through correspondents in the daily Press, that it will, and it is likely they are telling the public what has been told to themselves by certain informants. Over £20,000, it is stated, will be spent upon the drainage, £10,000 being put down to the Banagher district. The sum of £20,000, though it will go but a small way in carrying out necessary works in the drainage of the Shannon, will still be a help during the winter to the

labouring population, provided the greater part of it is spent upon labour and not expended in too much supervision. Work is wanted—useful work—for the able-bodied and willing, and not the creation of a large number of head overseers, under-overseers, and assistant overseers, deputies, and walking foremen. This was how large sums of money were swallowed up in the relief works of the past generation. We trust that still larger grants will be made towards drainage and other works than what has already been announced. The time is opportune, and labour is plentiful. Only those works which are urgently called for, or certain to prove a benefit to the country, should be undertaken, and it is needless to say there are several of this class, the immediate execution of which would contribute powerfully to the national welfare.

### THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A COUNCIL meeting was held at 212 Great Brunswick-street, on the 16th ultimo, when a communication was received from the Local Government Board requesting that the Institute would transmit its amendments on the proposed Building Bye-laws to that body, who would furnish a copy of same to the sanitary authority. Mr. Drew brought forward the report of the Council on the bye-laws, which it was proposed to forward, and which will be found elsewhere in our columns, and which was under discussion in detail during a protracted sitting. It was mentioned that a private opinion had been expressed by competent legal authority that these bye-laws had been drawn in many respects without regard to the scope and powers conferred by the Public Health Act, and would be found in some provisions *ultra vires*, and at variance with the law.

### CORRESPONDENCE.

#### RECENT DISCOVERIES AT DONNYBROOK.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Having visited the site of the ancient burial place at Donnybrook, and not having been in the vicinity for some years, I strolled about the old Fair Green, and on the verge of the river happened on a most curious tablet or medal of brass. A learned friend to whom I have submitted it agrees with me in that—although he doubts the correctness of other conclusions that I have come to—one side of the medal represents a sun—that is, it has raised rays, and attached are two slits in small projecting lugs, that ribbons might be fastened to. This would lead me to suppose it a medal or badge, and no doubt of great antiquity, probably before the Christian era. Although if my surmise be correct, the state of the inscription, which is in intaglio, is surprising, and shews the great preserving properties of the soil of that neighbourhood. The engraving is somewhat defaced, but I can plainly make out the following:—

BRO-TS' EQUES TRIARI TRIOBO' LUS T' MAROS.,  
which I translate—"Brontes, the horseman, the old and valued soldier, his badge or medal, from Epirus."

Hoping that some of your readers will kindly give their views on this matter, is my excuse for troubling you, and seeking to intrude on your valuable space.—I am, sir, &c.,

Wood-street,  
18th November, 1879. ANTIQUUS.

#### DISCOVERIES AT DONNYBROOK.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—An old friend of mine, a picker-up of unconsidered trifles, has shown me a brass star, such as aerobats wear on their forehead, which he says he found on the Fair Green of Donnybrook—a very likely place. I regret to say that my rendering of the inscription scratched on the back of it has caused a rupture between us, especially when

I told him (in reply to his saying that he would refer the matter to you) that you could not be bothered with such nonsense. In case he should do so, I am sure a glance will be sufficient to convince you that the scratching is merely—T. Morris, Brown's Equestrian Troupe!—Yours, &c.,  
Rus-in-Urbis, Nov. 20, 1879. Z.

### SOMETHING STRANGE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—May I ask your kind indulgence and admission to your journal for the following:—

I know that you like to get notes of works from the provinces, and will regard this as something new. The town of Skibbereen takes its name from a *bóhéreen*, through a squib or marsh, in which a greater part of the town stands at present; and, from its softening influence on their brains, may arise much that appears curious in the doings of its inhabitants. A former generation chose a somewhat elevated site for their church, and it was appreciated by the people, when fifty-three years ago they found it necessary to erect a larger structure, which, although perhaps not sufficiently elegant for the advanced *Ruskinite* opinions of the present day, was and is amply sufficient for the number of worshippers who attend it. A gentleman of well-known taste, education, and feeling, thinking it a pity to remove an old landmark, and having a due veneration for the church of his fathers, so meekly reminding him of how to gauge the twenty-four hours, and, by keeping within the compass, standing erect on the square, got the opinions of architects in Dublin and Cork, as to whether the edifice could not be made to answer the requirements of the western Carberrians; but, as

"Who drives fat oxen should himself be fat,"

so must the Skibbereenians have their church in a bog, earing little for artists, architects, or gentlemen; and this is what appears to me as "passing strange." At about a quarter of a mile south of the town, "when I was a boy in my father's mud edifice," it was determined to build a bridge; and my old schoolfellows, Tead Driseoll and Jerry Donovan, from Ross, were working at the abutment on this side of the river, when Tead, all of a sudden, sunk in the blue potters' clay, and, only that we were convenient to dig him out, he would have been *non come at i bus in swampan*. Well, sir, it is within thirty yards of this soft spot that the Skibbereenians are going to try to build a church! *but it is not built yet*. The foundations are to be of concrete, that delectable composition, covering, like charity, a multitude of sins; and the flooring is to be at least 8 ft. over the sod, it being just possible that for fifteen out of the fifty-two Sundays the tide of the river will flow within a foot of the feet of the congregation who must go to church over a bridge. Oh! how symbolic of the fisherman; how natural to adopt potters' clay! I would not dream of troubling you with what you would suppose was a mere building romance, were it not that contracts for the foundations (which are to be like the blocks at Poolbeg Lighthouse, of an erratic though stony nature) are advertised for. Is it not a sad thing that we have no architects here? Where is Richard Henry Notter, William Levis, G. E. Lee, William Murphy, James Roche, or G. P. Whyte of Glengarriffe? The O'Donovan has subscribed £1,000, and long may he have the power, as he has the heart; but sorry indeed would I be to see his money sunk to build *Abbeystrewry Church* in *Creagh* parish, without being able to dig it out as we did Tead Driseoll in 1854.

You will be glad to hear that we are thriving with what we can get out of the Baroness Burdett-Coutts, and I am, sir, yours, &c., "Holy Joe."

Firkin Villa, Fisher's Buildings,  
Toormore,  
20th November, 1879.



A "TENDER" SUBJECT.

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—Kindly give in your next issue of the IRISH BUILDER a list of tenders for the sheds to be erected at the South Dublin Union Workhouse. The contract was given away on yesterday, and it appears there were fourteen tenders for the job. The names of the parties, and the amounts, would be interesting to several in the trade.—Yours, &c., X. Y. Z.

28th Nov., 1879.

[We regret that we cannot furnish the information asked for by our correspondent. We have made personal application to the architects, as well as to the clerk of the union. The list may be found after awhile in the "General Anzeiger"!—Ed. I. B.]

THE MACHINERY OF GAS TRADING.

THE following communication, addressed to the Chairman of the Paving and Lighting Committee of the Corporation, has been sent to us for publication. The writer is, we presume, correct in the charges and statements made therein, and on such presumption we give it place in our columns:—

SIR,—As the Corporation are about making a new contract with the Alliance Gas Company for the future lighting of the city, I respectfully beg to bring under the notice of your committee the following facts descriptive of the manner in which that company carried out their contract with the Corporation on a former occasion, and earnestly request that, in justice to the ratepayers generally, and particularly to those who assisted in exposing it, further inquiry will be held on the subject.

In July, 1874, at the termination of the period during which 20-candle gas had been used, the burners in the public lamps consumed only from 2 to 3 c. ft. of gas per hour, and No. 1 Committee gave orders that all such burners should be removed, and replaced in every public lamp all over the city by others consuming 4 cubic feet per hour, suitable for 16-candle gas then about being used. This order the gas company gradually carried out, and at the beginning of 1875 had it completed when flames of equal size and shape were burning in every public lamp. But about the middle of July, 1874, the 4 ft. burners were simultaneously placed in all the metered lamps, while the old 20-candle gas burners consuming a much smaller bulk of gas remained in the unmetered lamps, with some few exceptions, until they were gradually changed. During the following month (August), I showed this unequal lighting to several of the ratepayers in their own and other divisions of the city, and I was requested by those gentlemen to call public attention to the matter through the columns of the public Press, which I frequently did until the end of November, at which time I wrote to the Lord Mayor on the subject, enclosing a copy of a letter I had written a few days previously to the Commissioners of Police, directing their attention to the matter.

I need not remind your committee that the result of placing the 4 ft. burners in all the metered lamps under such circumstances was, the Gas Company were enabled to obtain from the Corporation payment for a bulk of gas greatly in excess of what was actually consumed while such unequal lighting existed, and to prevent them doing so, complaint was made before the Local Government Auditor, who held an inquiry into the matter at the City Hall on the 17th and 19th of February, 1876.

At that inquiry I described on oath the unequal lighting of the public lamps, as above detailed, and my evidence was supported by that of three of the ratepayers, out of about twenty who also witnessed it in different parts of the city—the auditor deeming it unnecessary to hear a repetition of the evidence from any of the others. The claim of the gas company, *strange to say*, was upheld by the servants of the Corporation only. The evidence given on oath by the Inspector of Public Lighting during his examination on the first day of the inquiry was, that my sworn evidence was falsehood, that the making of the 4 ft. burners, and the placing of them in the lamps, occupied six months from the time the order was given for them in July, 1874. But on the second day of the inquiry he stated that that was all a mistake, that they were all made, delivered, and equally placed (1 to 9) in the metered and unmetered lamps, in three instead of six months, according as they were received from the Gas Company on four different occasions from July until the end of October, 1874. This statement was, after a manner, supported by some of the lamp lighters; and in addition, personal character,

personal considerations were all brought in, and technicalities without end, in order to defeat justice; the result of all being, that the Auditor refused to disallow payment to the Gas Company for the bulks of gas charged for. This decision was arrived at without making any inquiry about the cause of the bulk of gas charged to the public lamps during the October quarter, 1874, being almost 5 ft. per lamp per night in excess of that charged for during the same quarter in 1873, and which could not have occurred if the 4 ft. burners were not placed at once in all the metered lamps, as I, in my sworn evidence, stated they had been, and as the following table (the details of which were unknown to me until last week) proves beyond contradiction they must have been:—

Quarter (92 nights) ended	Year	No. of Lamps	Total bulks of Gas charged for	Bulk per lamp per quarter	Bulk per lamp per night
October 5	1873	3,377	5,593,900	1,656½	18
"	1874	3,411	7,176,600	2,104	22½
"	1875	3,442	7,870,400	2,286½	24½
"	1876	3,473	7,658,300	2,203½	24

About two weeks of the quarter had elapsed before the 4 ft. burners were placed in the metered lamps in July, 1874, and in 1875 the pressure on the gas was greater than it was in either 1874 or 1876.—Yours, &c., JAMES KIRBY.  
26th Nov., 1879.

NOTES OF WORKS.

DOUGLAS, COUNTY CORK.—Building and other improvements at Douglas graveyard, County Cork, are being carried out under the superintendence of Mr. K. D. Roche, of South Mall, Cork. They comprise a sexton's lodge; the re-building of present range of stabling, and also the entrance gate; the erection of boundary wall, and the formation of new carriage drive to the principal entrance to church.

The ancient Church of Kilcommon, Tinahely, Diocese of Ferns, was re-opened on Wednesday, 12th ult., after sundry improvements and "restoration." The old side galleries have been removed; the church has been entirely gutted; the box pews have been superseded by open benches; a capacious vestry has been built; a beautiful chancel window has also been added, the gift of the Rev. Canon Brownrigg; the roof is newly slated. The contractor was Mr. Wentworth Taylor, of Tinahely.

GARRISTOWN RIVER WORKS.—In order to give employment during the coming winter, Lord Langford, R. Q. Alexander, Esq., and others, instructed Mr. James Dillon, civil engineer, of Dublin, to design and estimate for important drainage and sanitary works in the neighbourhood of Garristown. This gentleman at once set to work, and his plans and estimates for same have already been favourably reported upon by the Commissioners of Public Works, showing an anxiety on their part to lose no time in forwarding the work. The principal proprietors have just assented to the undertaking, and they fully expect that with the support of the remaining proprietors and their tenants, that their engineer, Mr. Dillon, will (as he has already succeeded in doing in other places) be enabled to economically carry on the works throughout the winter from his large experience in such matters, thus affording employment to those in want of it.

THE LAW COURTS.—Some necessary work, consisting of alterations, additions, and repairs, have been carried out during the vacation at the Law Courts. Externally the reparations consisted in giving the eastern façade a presentable appearance, and replacing the disintegrated cornice by new balustrade work. Internally, the Courts of Queen's Bench and Common Pleas, with other offices, have been painted anew, and some small wants supplied. A waiting-room has been provided in the northern block for gentlemen who may be summoned on juries, one of the old courts or offices being utilised for the purpose. Telephonic communication

will, it is said, be established between the waiting-room and the crier's box in each court to facilitate attendance. Messrs. Silthorpe and Son, Cork-hill, executed the painting, &c.; Mr. B. Leech, builder, the waiting-room and accessories. All the works have been carried out under the supervision of the architect to the Board of Works (Mr. J. H. Owen), or clerks of the same department acting under him.

The parish church, Birr, Diocese of Killaloe, was re-opened on Thursday, 20th ult., after additions and improvements. The church was erected in the early part of the present century, from the design of the late Francis Johnston, of this city. The nave and tower are in good proportion, and are richly ornamented with cut-stone pinnacles. The principal improvements recently effected consist of a new chancel at east end, starting from a lofty arch of Caen stone, and terminating in a six-bay Gothic window, the cut stone mullions and tracery of which are handsome; the substitution of open pitch pine benches for the old-fashioned high pews; the construction of an organ chamber off chancel, and sundry smaller changes. The fittings and furniture of chancel are of chaste and elegant design. It is paved with Minton's tiles, chiefly the gift of Lady Hawke. A handsome lectern in carved oak was presented by Mr. H. P. Jellett, Q.C. The entire work has been completed at a cost of about £1,500. The plans were prepared by Mr. T. Drew, R.H.A. The contractors were Messrs. J. and W. Beckett, Dublin.

A FAT APPOINTMENT.

THE guardians of Abbeyleix Union are certainly in advance of the age; and, that their liberality may be known far and wide, we give the substance of their advertisement for a clerk of works the benefit of our circulation, though we fear some unenviable individual has been appointed before this:—

CLERK OF WORKS WANTED.—The Board of Guardians of the above Union will, at their meeting on Tuesday, the 25th November next, proceed to elect a suitable person to fill the above office at a salary of £10 per annum. The person appointed will be required to prepare specifications, plans, estimates, &c., to visit and report on the various works required to be executed by the Board of Guardians and Sanitary Authority of this Union.

Who would not be a clerk of works, after the above? Is it possible that £10 is a misprint for £100? Alas! we fear not. As the guardians do not specify that the clerk of works will be expected to devote the whole of his time to the service of the board, doubtless they will succeed in getting a very "Haudy Audy," whose knowledge of building and whose drawing abilities will be a credit to his class, and reflect honour on a board whose wisdom and munificence are sufficient to render them noteworthy for the rest of their lives, or, as the old Irish ditty has it,

"Till the end of the world, and after, O."

THE RELIEF WORKS.

THE following letter, addressed to the Earl of Longford, was read at meeting of Board of Guardians on Wednesday:—

MY LORD.—The Government have ordered that the Board of Works shall construct moveable weirs in lieu of the Shannon weir mounds. The working plans are being prepared; also, they are going to cut an auxiliary channel for the Shannon at Meelick, below Banagher. This work will be commenced in about three weeks hence. I am appointed the superintending engineer under the Board of Works. Great sluices will be constructed in the Tarnonbarry and Ruskey weirs next summer. No tax will be charged on the lands for those works. The outlets of the Camlin, the Runn, &c., will be all opened easily when Lough Forbes, &c., will be lowered. I am employed on the drainage districts of Strokestown and others, getting them cleaned and deepened to the state they were in when new 20 years ago. If you wish to get the Camlin, the Runn, &c., improved, it may be done under the Board of Works, as the Strokestown is going to be done. JAMES LYNAM, C.E.



## THE NEW BYE-LAWS.

THE following are the amendments to the proposed Building Bye-Laws, and remarks in support thereof, submitted by the Royal Institute of the Architects of Ireland for the consideration of the Local Government Board:—

The Council of the Royal Institute of the Architects of Ireland, in offering some amendments for the consideration of the Local Government Board, wish their position to be distinctly understood as in no way antagonistic to the Sanitary Authority promoting these Building Bye-Laws, but as desirous to see this most salutary measure become law with as little delay as possible. The wide experience of some members of the Institute has pointed out some details which might operate injuriously to the interests of the city, and should be amended.

The Local Government Board is aware that the sanitary question of paramount importance in the peculiar circumstances of the city of Dublin is the provision of wholesome dwellings for the poorer classes, permitting of the demolition of unhealthy ones. The high cost of building in Dublin is already seriously operative against this movement; and when it is reported to the Council, by architects most experienced in this class of building, that the operation of the Bye-Laws, as proposed, would increase the cost of new dwellings for the poor by from 20 to 30 per cent. in average cases, the Council conceives this point calls for the serious attention of the Local Government Board and Sanitary Authority, as this would be practically prohibitory of all such improvement by private enterprise, and seriously detrimental to the city. The Council strongly recommend that all clauses bearing upon the poorer classes of dwellings especially should be re-considered, so that while omitting no provision absolutely necessary for the sanitary condition of such houses, their erection should not be weighted with any conditions which could be prudently dispensed with.

The clauses thus bearing upon dwellings for the poor, and which would increase their average cost by about 30 per cent., and which should be modified as regards this class of buildings, are as follow:—

Page	293	Clause	7
"	"	"	8 (c)
"	311	"	38
"	313	"	41
"	318	"	64 (b)
"	323	"	74
"	329	"	83
"	332	"	88
"	333	"	92

*Seriatim.*—The following are the amendments which the Institute of Architects points out as desirable, and its reasons in support of same.

P. 290, clause 2, 2nd line—after 'street' for 'at such level' read 'in such manner.'

Clause 3—insert 'at least' between 'foot-paths' and '6 ft. wide' where it occurs twice.

P. 293, clause 7, last line—for 'six' read 'four' inches thick, and add 'or with a layer of lime riddlings, broken brick, or other clean absorbent dry material to the satisfaction of the sanitary authority, thoroughly drained to the best available outfall.'

*Remark.*—The Council entirely set the practical experience of architects against the provision of an impervious bed of concrete over the whole site of a house as being compulsory in all cases. This would mean in many cases in Dublin a damp and unwholesome house from condensation (in some instances found untenable), injurious to timber, and adding without necessity to the cost of the poorer houses.

P. 293, cl. 8, 3rd line—insert 'any' between 'from' and 'adjoining' (c.) omit 'as above,' and read 'of not less than five parts of cement to one of sand.'

*Remark.*—The proportion laid down, viz.,

three parts of sand to one of cement is excessive, and unheard of in ordinary building practice. This would also bear unfavourably on poorer houses.

P. 293, cl. 7, after end of paragraph and before par. 9—insert 'or of good cement concrete, as hereafter described.'

P. 294, at end of paragraph 9—insert 'or of good cement concrete as hereafter described.'

P. 294, insert after last:—'Concrete where occurring in these Bye-Laws shall be deemed to be composed of the following materials in the following manner. One part of good Portland cement in due condition to not more than seven parts of clean ballast free from loam, broken stones, bricks, clinkers, breeze, or other incombustible materials suitable for the purpose in the opinion of the officer of the sanitary authority, duly and evenly mixed by admixture, with clean water or of one part of fresh ground lime to not more than six parts of similar materials similarly approved.'

*Remark.*—It appears absolutely essential that the term concrete where occurring throughout the Bye-Laws should be accurately defined, and it being now so widely used as a constructive material for walls, it should be specially dealt with as are brick and stone for the same purpose.

P. 308, cl. 31, line 3—insert after 'footings' 'unless it be erected on a level bed of natural rock.'

*Remark.*—It is not unusual in Dublin to sink to the natural rock for foundation, and build up from it without footings.

P. 311, cl. 38, line 3, after 'Building of'—omit down to line 1, p. 312, and insert before 'its thickness' 'if built of good concrete of proportions approved by the sanitary authority shall be one third less.'

*Remark.*—This clause should be amended to define thickness of concrete, and not leave an opening for building rubbish walls contemplated by Bye-Law as drawn. The proportions laid down would be contradictory of that for same purpose laid down at p. 360, cl. 6, for buildings of the warehouse class. The proportion 'one third greater,' prescribed by the London Building Act, when concrete building was a novelty would, if applied to concrete, be entirely contrary to the now universally recognised relative strength of concrete and brick walls. Persistence in either the scale of thickness proposed here or in the differing one repeated at p. 360, would be in Dublin prohibitory of this useful and economical constructive material, and be specially operative against the provision of dwellings for the poor.

P. 313, cl. 41, 42—Omit these paragraphs altogether.

*Remark.*—These provisions as to parapets, following the London Building Act, are admittedly even there of more fancied than real value to the vast majority of buildings. In the absence of well-authenticated evidence of any great danger or inconvenience arising from the want of these features quite novel to Dublin, the Council consider that under the peculiar circumstances of Dublin, the advisability of such a provision is open to grave doubt. The aggregate expense entailed by universal application of this would fall heavily on the citizens without corresponding advantage, and in dwellings for the poor it would add another appreciable item without absolute necessity.

P. 313, cl. 45 (a)—For '9 in.' read '8½ in.'

*Remark.*—Here and elsewhere throughout the Bye-Laws where discrepancies exist as to standard size of bricks, they should be corrected, 8½ in. long, if the standard, being substituted for 9 in. where occurring.

P. 314, cl. 47—Add at end, 'except such blocks being not more than 4 in. thick and 9 in. long, as may be necessary for attaching joiners' work or other fittings.'

*Remark.*—This provision, no doubt inadvertently made, leaves out of sight that under it would be afforded no means whatever for attaching skirtings, gas brackets, bells, &c., to any party wall.

P. 318, cl. 64 (G)—For '15 in.' read '6 in.'

*Remark.*—This also will at once be seen to be an inadvertent error, which would make it impossible to construct any ceiling below a hearth in most cases.

P. 321, cl. 69 (3)—For '6 in.' read '3 in.,' and for '3 in.' read 'in immediate contact with.'

*Remark.*—This provision as it stands, taken from the London Building Act, is by universal assent and experience obsolete useless and embarrassing, and will be amended in that act, and is perpetuated in no other building act in the kingdom. Under it would be prevented the enclosing of ordinary hot-water circulating pipes, as practised without danger or objection in many thousands of houses.

P. 323, cl. 74 (2)—Amend clause to read thus:—'Sets of chambers or rooms contained in one building tenanted by different persons shall be divided by walls of incombustible materials, and if contained in any building exceeding 3,600 square feet in area, be deemed to consist of two or more separate buildings, and to be divided accordingly, so far as they adjoin vertically by party walls. Omit end of clause.'

Clause 3—Omit the whole.

*Remark.*—Especial attention is requested to this as *prohibitory* by reason of enhanced cost of such artisans' dwellings in tenements on the block system, as e.g., the Peabody or Waterlow Buildings in London, or such as the Buckingham Buildings erected by the Artisans' Dwellings Company, Dublin. The expensive provision of solid party walls and fire-proof arching of floors between separate tenements in the same building would be a costly and unreasonable innovation, which would embarrass and discourage all provision of such buildings for the poorer classes as are referred to. The application of clause 2 to such cases as the ordinary one of shops with offices over same with a separate entrance, or to insurance companies' or other offices similarly situated (which form the rule and not the exception in every house in the business streets of Dublin) would be unreasonable in the extreme. It is submitted the operation of these Bye-Laws in the two cases quoted has not been considered.

P. 324, cl. 76.—Omit.

*Remark.*—This clause, it is respectfully submitted to the Local Government Board, is, in the opinion of the Council, *ultra vires* as regards the sanitary authority, the provisions of the Public Health Act giving no scope for framing a Bye-Law as to things which may, "in the judgment of the Sanitary Authority, be an annoyance to the public or a disfigurement to any street." And this Bye-Law, which is specially directed against lamps, signs, sign-posts, and other things suspended or projecting, which have been almost universally in use in this city and every other city from time immemorial, as well unprejudicial to sanitary conditions as convenient to citizens, cannot be held to come within the conditions of "security, stability, the prevention of fires, and the purpose of health," recited by the Act only. This, it is submitted, is of the nature of an æsthetic Bye-Law, which, if it had force of law, might be unreasonably exercised to the annoyance of the citizens (attention is drawn to a recent case heard by a divisional magistrate in Liverpool, who decided against the borough surveyor in a technical case against a projection such as contemplated by this proposed Bye-Law, pronouncing it as while being harmless to the public, &c., as beyond the interference of a sanitary authority.)



P. 325, cl. 77.—Omit where occurring the words 'architect or builder.'

*Remark.*—It is manifest that the architect or builder, acting under the owner or occupier as irresponsible agents, would have no legal power to deal with the property of the owner or occupier in the manner assumed by this Bye-Law, and it would have no legal effect as against them.

P. 326, cl. 78, p. 327.—It appears to the Council that the Public Health Act does not give power to enact Bye-Laws as to "printed bills, notices, and advertisements."

P. 327, cl. 80, line 6 and following, for 'city architect' read in each case 'officer of the sanitary authority,' as in other parts of this enactment.

*Remark.*—Confusion is likely to arise by the executive officer of the Sanitary Authority being in different parts of these Bye-Laws variously described as such, and elsewhere named 'the district surveyor,' and the 'city architect.' It is to be noted that the office of the city architect is not a statutory one, and now only an appointment made for one year.

P. 328, cl. 82.

*Remark.*—Under this Bye-Law, sanitary authority takes power "after a month's notice posted on such structure, . . . to sell such structure, any person interfering with or impeding the purchaser shall be liable on conviction to a penalty," &c. The Council recommend that this clause be amended in reasonable form, having doubts that a summary process of confiscation of property could be legalised by such a Bye-Law as this.

P. 329, clause 83, 2nd line—Insert after 'new domestic building' the words 'in a newly laid out street or site hitherto unbuilt on.'

*Remark.*—Without such limitation as this, this would be in many cases inapplicable to new buildings erected on an old site.

Clause 84—Amend in similar form.

Clause 85—Omit altogether.

*Remark.*—It is more clearly and fully expressed in 87 following.

P. 332, cl. 88—For '100 square inches' read '80 square inches.'

*Remark.*—= 9 in. by 9 in. area. Note that the area of a 10 in. circular flue is but 78.54 in.

P. 333, cl. 92—For 'to be laid in a bed of good concrete' read 'well and solidly bedded.' Next paragraph omit 'in street.' Fifth paragraph omit 'to be completely imbedded in good and solid concrete.'

*Remark.*—This system of laying drains, unusual hitherto in even superior domestic drainage work in Dublin, is calculated to increase the cost of such work and increase cost of poorer dwellings without any advantage whatever.

P. 334, cl. 93—For 'trap of pattern to be seen in the office of the sanitary authority,' read 'trap of pattern approved by the sanitary authority as effectual for its purpose.'

*Remark.*—The clause as drawn might prove embarrassing, and operate against the introduction of new or improved traps.

P. 337, cl. 96, 2nd par.—After 'without diminution of its diameter' read 'or with a ventilation pipe connected below the trap not less than 2 in. diameter.'

*Remark.*—With reference to ventilating pipe, it would entail unreasonable expense in some cases—as where w.c.s are situated in low or back return buildings—to carry up the soil pipe to the top of a lofty house 'without diminution of diameter.' Add at end of paragraph 'and each such pipe close continuously or staunchly jointed from end to end, without possibility of leakage or escape of sewer air.'

P. 337, cl. 96—3rd paragraph, line 10, omit 'a channel leading,' and add after

'gully grating' 'or properly ventilated intercepting trap.'

P. 360, cl. 6—Amend latter part of this clause as follows: 'the thickness shall be the same as described in the foregoing table for brickwork.'

*Remark.*—This is considered amply sufficient for buildings of this class, &c.

The marginal references, which are misleading and erroneous, should be corrected throughout.

For Committee,

THOMAS DREW, R.H.A., Sec.

### SANITARY ENGINEERING.\*

THE health of any building is dependent upon free and moving pure air outside and inside its walls; anything which interferes with this first condition of health is injurious. And it follows that in towns, where land is dear and a large number of persons are crowded on a given area, better ventilation and circulation of air may be obtained by placing dwellings in storeys one above the other, and leaving spaces between the buildings, than by placing them in one-storeyed buildings, which would be too close together to allow of circulation of air round the building. The next step in knowledge of sanitary construction is, to learn how to obtain pure air in a building. What is pure air? What are the impurities which make the air of a town so different from the fresh air of the country? The volume of sulphuric acid from coal thrown up by our fires into London air is enormous. A cubic yard of London air has been found to contain 19 grains of sulphurous acid. The street dust and mud is full of ammonia from horse-dung. The gases from the sewers pour into the town air. Our civilisation compels us to live in houses and to maintain a temperature different from that out of doors. What are the conditions as to change under which we exist out of doors? The movement of the air is stated in the Registrar-General's reports to be about 12 miles an hour on an average, or rather more than 17 ft. per second. It will rarely be much below 6 ft. per second. Imagine a frame about the height and width of a human body, measuring about 6 ft. by 1½ ft., or 9 square feet. Multiplying this by the velocity of movement of the air at 6 ft. a second, it will appear that in one second 54 cubic feet, in one minute 3,240 cubic feet, in one hour 196,400 cubic feet of air would flow over one person in the open. In a room the conditions are very different. In barracks, in a temperate climate, 600 cubic feet is the space allotted by regulation to each soldier; and when in hospital from 1,000 to 2,500 cubic feet to each patient. If it were desired to supply in a room a volume of fresh air comparable with that supplied out of doors, it would be necessary to change the air of the room from once to five times in every minute, but this would be a practical impossibility; and, even if it were possible, would entail conditions very disagreeable to the occupants. Hence, to maintain the comfort and temperature we desire indoors we sacrifice purity of air. Therefore, however impure the outer air is, that of our houses is less pure; and it may be accepted as an axiom that by the best ventilating arrangements we can only get air of a certain standard of impurity, and that any ventilating arrangements are only makeshifts to assist in remedying the evils to which we are exposed from the necessity of obtaining an atmosphere in our houses different in temperature from that of the outer air. On the other hand, why should we not do our best to obtain as pure air as we can? It has been recently shown that the soot and many deleterious matters from smoke may be easily removed by passing the smoke through spray on its way to the chimney. This would remove much impurity from town air; but until such a system of purifying town air is adopted, we can im-

prove the air in our houses by removing the suspended matter from the inflowing air, by filtration. Moreover, these suspended matters exist in much smaller quantities at an altitude; at 100 ft. they are greatly diminished, at 300 ft. the air is comparatively pure. The maintenance of the standard of purity, or rather impurity, in a building depends on ventilating arrangements. Ventilation chiefly depends on the laws which govern the movement of air, its dilution by heat or contraction by cold; or, if ventilation is effected by pumps and fans, then upon the laws of the motion of air in channels, the friction they entail, and similar questions. Therefore, all these are matters for careful study. But when we apply the study to practice, other considerations occur. We are told by theory that a room containing an air space of 1,000 cubic feet, occupied by one individual, would require to be supplied with 3,000 cubic feet per hour in order to maintain it in a proper condition of purity and humidity. But in our temperate climate, a careful practical examination of the condition of barrack-rooms and hospitals, judged of by the test of smell, showed that arrangements which appear to provide for a volume of air much less in amount than that obtained by calculation, will keep the room in a fair condition. These results have pointed to about 1,200 cubic feet of air admitted per man per hour in barrack-rooms occupied by persons in health. This need not be set down to errors in calculation or in theory. There are many data which cannot be brought into the theoretical calculation. For instance, the carbonic acid disappears in a newly-plastered or lime-washed room, and could be recovered from the lime; therefore a newly-cleaned, lime-whited room will present different conditions from a long-occupied, dirty room: Washing with quicklime destroys fungi in dirty walls; the same effect is produced by sulphurous acid fumigation. Air has the same property, especially dry air; and hence, opening windows, turning down beds, and all such measures, act directly on the subsequent state of the air. Therefore, an enormous effect is produced on all the elements of the above calculation if the windows of a room are kept open for several hours a-day instead of being closed. Besides this the conditions under which the air flows in and out of a room are so varied. The walls and ceiling themselves allow of a considerable passage of air. The ceiling affords a ready instance of porosity. An old ceiling, it will be observed, is blackened where the plaster has nothing over it to check the passage of air, whilst under the joists, where the air has not passed so freely, it is less black. On breaking the plaster it will be found that its blackness has arisen from its having acted like a filter, and retained the smoky particles, while the air passed through. Ill-fitting doors and windows allow of the passage of a considerable quantity of air. In a temperate climate, where the changes of temperature of the outer air are rapid and considerable, these means of producing the outflow from and the inflow of air into a confined space are in constant operation. A sleeping-room is very warm when occupied at night, a rapid fall of temperature outside occurs, and at once a considerable movement of air takes place. It may be summed up that, whatever the cubic space, the air in a confined space occupied by living beings may be assumed to attain a permanent degree of purity, or rather impurity, theoretically dependent upon the rate at which emanations are given out by the breathing and other exhalations of the occupants, and upon the rate at which fresh air is admitted, and that therefore the same supply of air will equally well ventilate any space; but the larger the cubic space the longer it will be before the air in it attains its permanent condition of impurity. Moreover, the larger the cubic space the more easily will the supply of fresh air be brought in without altering the temperature, and without causing injurious draughts. One of the chief difficulties of ventilation arises from the draughts occasioned thereby.

\* Abstract of paper by Captain Galton, at Sanitary Science Congress.



Everyone approves of ventilation in theory, but practically no one likes to perceive any movement of air. These conditions point to the care which should be exercised in the form of rooms, the position of windows, doors, fireplaces, and other matters. We should study how the currents of air move in a room; what is the effect of the form of room on the circulation of these currents of air. For instance, a lofty room with the tops of windows some distance below the ceiling, and without outlets for air at the ceiling level, becomes dangerous unless a constant circulation of air goes on, because the heated air, loaded with impurities, ascends, stagnates in the space near the ceiling, cools, and falls down, and remixes with the air in the lower part of the room, and thus increases its impurity. These effects are modified by anything which causes circulation of the air. The open fireplace creates circulation of air in a room, with closed doors and windows. The air is drawn along the floor towards the grate; it is then warmed by the heat which pervades all objects near the fire, and part is carried up the chimney with the smoke, whilst the remainder, partly in consequence of the warmth it has acquired from the fire, and partly owing to the impetus created in its movement towards the fire, flows upwards towards the ceiling near the chimney breast. It passes along the ceiling, and as it cools in its progress towards the opposite wall, descends to the floor, to be again drawn towards the fireplace. Thus the open fire, whilst continually removing a certain quantity of air from the room, which must be replaced by fresh air, causes an efficient circulation of the air remaining in the room. Moreover, a room warmed by an open fire is pleasanter than a room warmed by hot-water pipes. A warm body radiates heat to a colder body near to it. The heat rays from a flame or from incandescent matter pass through the air without heating it; they warm the solid bodies upon which they impinge, and these warm the air. Where the source of heat in a room consists of hot-water pipes, or low-pressure steam pipes, the air is first warmed, and imparts its heat to the walls. The air is thus warmer than the walls. When a room is warmed by an open fire, the warming is effected by the radiant heat from the fire, which passes through the air without sensibly warming it; the radiant heat warms the walls and furniture, and these impart their heat to the air. Therefore the walls in this case are warmer than the air. Consequently, in two rooms, one warmed by an open fire, and the other by hot-water pipes, and with air at the same temperature in both rooms, the walls in the room heated by hot-water pipes would be some degrees colder than the air in the room, and, therefore, colder than the walls of a room heated by an open fire; and these colder walls would therefore abstract heat from the occupants by radiation more rapidly than would be the case in the room heated by an open fire. And to bring the walls in the room heated with hot-water pipes to the same temperature as the walls in the room heated by the open fire would require the air of the room to be heated to an amount beyond that necessary for comfort, and therefore to a greater amount than is desirable. Moreover warmed air contains less oxygen than cooler air, and as sick persons are more sensitive to such influences than persons in health, these may be the reasons why, in hospital wards, the warming by means of an open fire has been always preferred to warming by hot air or hot-water pipes. With complicated buildings, such as theatres, legislative assemblies, prisons, &c., the problems of ventilation are more difficult and intricate, but all are based on the same principles of the movement of air. Another group of questions relating to sanitary construction are: What are the best materials for the house, and the best distribution of those materials? How can the less pure air from the ground be prevented from entering the house through the basement? What is

the effect of the porosity of materials on the health of the inmates of a house? What is the law which regulates the loss of heat through walls and windows, skylights and roofs? For instance, if we assume that the loss of heat through a wall 9 in.—i.e., one brick—thick, with a temperature inside the room 2 deg. above that outside, would be one unit for a given area of surface of wall, the loss of heat through a wall built of two half bricks—i.e., 4½ in.—on each side of a central air space, would be two-thirds of the loss of the solid wall. Similarly the loss of heat through a double window would be about three-fifths of that through a single window. The laws which govern these questions are as complicated as those which govern the strength of materials, or the flow of water, and they form the alphabet of sanitary building. Whilst, however, I have limited myself to speaking of a theoretical knowledge, it is of essential importance that the sanitary architect, builder, or engineer should have also practical technical knowledge of the subject. He should know what constitutes a good material and good workmanship.

#### HOME AND FOREIGN NOTES.

**ROYAL INSTITUTE OF BRITISH ARCHITECTS.**—The first ordinary meeting of Session 1879-80 takes place this evening, when the opening address will be delivered by John Whichcord, Esq., F.S.A., President. The presentation of a gold badge and chain of office, to be worn by future presidents, will take place. It is the gift of Prof. Donaldson.

**STRIKES AND EMIGRATION.**—On the 26th ult. Messrs. Sowden and Sons, engineers, Bradford, decided to reduce the hours of labour in their establishment from 56½ to 54 per week; and several old workmen now on strike have been asked to return to their situations. It is expected other firms will follow the example.—A batch of engineers on strike left for Liverpool, *en route* for Quakers' City, America, where they have accepted engagements with large engineering firms.

**GREAT TELESCOPE AT CORK.**—The equatorial telescope constructed for the new observatory at the Queen's College, Cork, by Mr. Howard Grubb, F.R.S., has been placed in position. Dr. Bull, Astronomer Royal for Ireland, referee on the part of the Queen's College, has reported on the object glass just finished. He states that he never saw anything better in an instrument of its size. The telescope was exhibited at the Paris Exhibition in 1878, and was pronounced the most successful achievement of modern mechanical science. The new observatory has been erected and fitted at the expense of Mr. W. S. Crawford, of Cork.

**INSTITUTION OF CIVIL ENGINEERS OF IRELAND.**—This body will hold their opening meeting for the session on the 3rd inst., when it is expected that a paper on "Proposed Improvements in Dioptric Lenses for Gas Lighthouses" will be read by John S. Sloane, C.E., and, being of no ordinary interest, will probably attract a considerable audience. We understand that it will present many novel suggestions, which will, no doubt, be dealt with in the discussion that will arise, the subject being one with which the Commissioners of Irish Lighthouses and the members of the Gas Company are, or are supposed to be, familiar. We hope to give a full report of the matter in our next issue.

**THE RESTORATION OF ST. MARK'S, VENICE.**—There was a meeting on the 26th at the Old Town Hall, Manchester, to protest against the threatened destruction of St. Mark's, Church, Venice. Mr. George Milner presided. Mr. Ruskin wrote that it was impossible for him at present to take any part in the defence which, though far too late, had been undertaken by the scholars of England of the most precious Christian buildings in Europe. The work which had been going on had been making the church into barracks and billiard-rooms. The only thing they could do in the case, the only really practical thing that he could think of, was for them to send him "lots of money" to spend in getting drawings of the building before it went. He did not believe they could save it by any protest.

**DIRTY STREETS.**—Several householders were summoned for neglecting to sweep the footway opposite their houses, but, as it appeared that the summonses were all for one date, and that the sergeant had gone about that day on the special duty of looking after the footways, the magistrate said the law appeared to be only partially carried out. During the wet weather the footways in some parts were disgraceful, yet the police looked on at

this. The footway opposite that court was almost impassable through not having been swept. The police did not seem to have their eyes about them. Sergeant Lynch said they had no control over that footway. Mr. O'Donel said the Board of Works might be a very great body, but they were amenable to the law like other people, and they should be summoned. He would not fine any of these people.

**THE DRAINAGE OF NAAS.**—The Drainage Committee appointed by the guardians, having considered the report of Mr. Brett, C.E., and the recommendation of Mr. Rawlinson (Royal Sanitary Commissioner), resolved—"That as we see a probability of parties interested entering into an agreement to receive the drainage for agricultural uses in fertilising sewage farms, on receiving compensation for any actual loss which may be now or hereafter sustained by them by any act of ours as a sanitary body, and for other reasons which we very fully considered, we are inclined now to recommend the adoption of the system of sewage farms as laid down in Mr. Brett's plans, and approved of by Mr. Rawlinson—the outfalls already approved of by us at last meeting to be taken advantage of. We also recommend the board of guardians to communicate with the proprietors and occupiers of the ground proposed to be used in carrying out the plans."

**ROAD-MUD MORTAR.**—A correspondent in the daily Press draws attention to a state of things in Liverpool, and which is beginning to be imitated here by unprincipled and low-class builders:—"A curious difficulty under the Building Act has just been experienced in Liverpool, and is causing a good deal of comment. It has been found that the builders of some of the numerous small houses in the Everton district have been extensively using a mortar composed of a small quantity of lime mixed with street sweepings, the latter being largely made up of manure. This material is used for plastering the inside walls of the houses. Dr. Taylor, the medical officer, has announced that under the existing law he is unable to take any steps to prevent this state of things, as no nuisance exists at present, but he is convinced a nuisance will soon arise after the mixture has been on the walls for a little time, and then he will institute legal proceedings."

#### TO CORRESPONDENTS.

**THE BUILDING BYE-LAWS.**—We publish in present issue some amendments to these, and remarks thereon, submitted by the Irish Institute of Architects to the consideration of the Local Government Board. Some of these amendments we consider advisable, and a few others are debatable. Having already on two occasions recommended a careful revision of these Bye-Laws before their confirmation, we will refrain from further remarks, save to hope that their wholesome stringency will not be interfered with, so far as they are prohibitive of bad building in workmanship and materials. **ENQUIRER.**—The works of the architect named are all good, though some of his profession since his day do not agree in all his conclusions. Still the works should be in every well-appointed library, and read by all lovers and students of ecclesiastical architecture. Some of the architect's works are fully illustrated, but we do not just now know their price when first published. Copies of all are, however, procurable through second-hand booksellers.

**A BUILDER.**—Such a notice would be entirely unsuitable to our columns.

**KINGSLED.**—Before the papers are concluded the matter referred to will be again noticed.

**PRESBYTER.**—The church named was erected about 1846.

**A WORKMAN.**—The reports are now procurable, as you will see by a notice in present issue.

**RECEIVED.**—W. C.—R. H.—Clerk of Works (yes).—J. B.—R. E.—C. E.—An Architect (thanks).—M. A.—R. D. S.—Q. C.—P. F.—G. S.—B. A.—M. N.—C. D.—J. S. (London).—T. H.—F. P.—A. R., &c.

#### NOTICE.

*It is to be distinctly understood that although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.*

*We shall be glad to receive from any of our readers notes of works in contemplation or in progress in town or country. No charge is made for insertion.*

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## Illustrations.

VILLA AT BELMONT, NEAR BELFAST, FOR  
WM. EWART, Esq., M.P.

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## THE IRISH BUILDER.

VOL. XXI.—No. 480.

OLD AND NEW CHRISTMAS IN THE  
BUILDING TRADE.

BUILDING RECOLLECTIONS AND REFLECTIONS.



CHRISTMAS customs in general throughout Ireland as well as in the sister kingdoms have undergone many changes from what characterised them in former times. Even since the close of the last century these changes have been marked—indeed during the last fifty years the condition of life and society, through the progress of the arts and sciences, has led to a great change in working ways as regards living, as well as in respect to mere social observances. Several trades have benefited, new branches of industry have been created, some old ones have suffered, and the modern Christmas of the building trade, apart from the present depression, has benefited by the changes of time. Fifty years ago and upwards the Christmas and winter days were periods of anxiety for the members of nearly all the branches of the building trade, and to some classes of workmen more than others. Only a very limited number of old hands were formerly found in work by the building employers throughout the winter months, and the carpenters as well as the bricklayers, masons, and plasterers, considered themselves lucky indeed if they succeeded in being kept employed up to the eve of Christmas. The carpenters or joiners, perhaps, fared the best of any of the branches, particularly if the employer was wealthy, and had contracts in hand.

The builders of the early part of the present century did not consider themselves obliged to proceed with ordinary contract work during the winter months, and the set in of severe frosty weather was the signal for ceasing outside building work. If the large builders had not contract work in hand when the severe frosty weather set in about or after Christmas, they often, for the sake of keeping a few of their old hands going, prepared joinery work, such as doors, sashes, and their frames, architraves, mouldings, &c., on speculation or for stock, and in some instances for projected buildings or houses of their own. Thus a certain number of shop hands were kept in employment for the winter. The masons, bricklayers, plasterers, painters, and slaters, from the nature of their employments, even with the more considerate of the employers during the winter time, failed to find constant employment, save under favourable conditions, and in enclosed buildings or houses roofed in before the winter set in. The house painter of old (and indeed to some extent at present) had reason to look upon the approach of winter with anxiety, for comparatively few of the members of the trade could procure employment, and had to eke out life as best they could by doing occasional small jobs for house owners, traders, and shopkeepers.

In builders' workshops the introduction of gas has been a great advantage, though still in many country or small suburban workshops candles are used. House joiners never looked with favour on the approach of candle light, when the short days and the end of Autumn necessitated their use to enable them to give their employers a fair day's work for a fair day's wages. The carpenter's candlestick or holder was a primitive article indeed. Often it was merely a square block of wood, with a hole bored in the centre, or without a hole, with three or four nails driven in, leaving sufficient space between for the projecting nails to hold the candle. Sometimes the block of wood had two pieces nailed to the sides, which were made to taper and splay upwards like a "clams," the nailed-on pieces meeting near the top, and between which the candle was placed. The making of the candlesticks for the first night's lighting gave rise to many remarks on the part of the workmen, who generally wished there was no such thing as candle-light work. There is a story current in the carpenters' workshops of Dublin of a somewhat eccentric and dissipated joiner, who, when he heard a brother workman growling, and thus giving expression to his feelings, "Bad luck to the man who invented candle-light," responded "aye, and daylight too." The latter individual we may be sure was not over-fond of work in summer or winter.

Christmas or wintry weather was never conducive to sharp tools, and except in well-appointed workshops with modern steam and machine appliances, a frosty morning or an hour or two at the grinding stone was sufficient to try the temper of many workmen. The outside glue pot—that which holds the water—was generally called into requisition on frosty mornings or very cold days, the youngest apprentice being made to heat the water so that it could be used in the trough of the grinding stone. A stone turning in ice water would not cut a good bevel on a chisel or plane iron—indeed the frost betimes would seem to have entered the stone, and the usual "bite" was absent, necessitating the

use of a handful of fine sand being thrown on the stone as it revolved. Some allowance, too, must be made for the workman holding the plane iron, for his fingers often grew so numb with the cold that the grip of the tool he was grinding was weak and unsteady, consequently it took him longer to grind it.

The workshops of our present-day large builders are generally well lighted, but ventilation has not as yet been well attended to, except in comparatively few instances. Although daylight must always be preferable, and the best for the execution of work, still there is little or no difficulty experienced now on the part of workmen in doing by gas light whatever kind of workmanship may be needed. The Christmas or winter time is no longer looked upon with the same anxiety as formerly by building workmen, although a number of them still are fated to feel the want of constant employment through the winter months. The old notions that obtained respecting building in frosty weather are through various causes and exigencies cast aside. If a warehouse, a mansion, or a public building is now commenced it proceeds irrespective of the frost, and the weather must be extremely wet or exceptionally snowy to stop operations. It is a fact, nevertheless, that walls erected in very wet or frosty weather are most likely to show the natural results in non-adhesive mortar, weakness in the strength of the walls, and a great liability to settlements. However, the work proceeds, because clients are impatient and builders are bound to time. The spirit of competition among merchants and traders is rife, and every day seems a week to the owner until the building is finished. Perhaps it is a warehouse or a house with a shop underneath, and it is required to be finished and opened for a grand Christmas display of goods, drapery, provisions, &c. What cares the merchant or trader, full of his competition craze, whether the mortar of the brick or stone work becomes somewhat friable, or if other results known to architects, builders, and workmen happen? The builder knows his business, and expedites his job without bothering the go-ahead trader about the technicalities of construction and materials. The builder is perhaps as anxious to get his last instalment as the trader or merchant to see the last of the builder and the workmen. So the job is finished, the builder getting his money and the trader his house and shop in time for Christmas exhibition of fancy goods. Thus the world moves in its helter-skelter fashion, efficiency being sacrificed that a craze may be satisfied. Expedition in building work is in itself not to be condemned, for much work can be done quickly and well by modern methods and appliances so generally available. Building workmen, too, have profited in recent years by the changes that have taken place by which building proceeds continuously throughout the year. Of course there are still much less building operations proceeding in the winter time than in the summer months, but compared with former years the winter building operations have greatly increased over the three kingdoms. In the early years of the present century it would have been a strange proceeding to attempt to build at night. The use of gas renders it comparatively easy to build walls, and do other outside work by night time. The employment of lime-light and the certain improvement of the electric light will, perhaps, in a few years more lead to many outside building opera-



tions at night, particularly in cases where the work is urgently called for, and sufficient day time is not available for the completion of the work. Both night and day are utilised in these days for the prosecution of most forms of labour, and even the Sunday is being pressed more and more into the service of man. Rest and recreation, though possible to many, are becoming impossible to many more. The holiday is advocated, but the cry is still "work, work, work!" and the holidays of old are departing fast, and the sinners of our day have not time to think of the saints of old, as such attention might detract from what is understood as "business." The Christmas of our fathers, too, is sadly shaken, though still a festival that wakens a host of recollections and commands certain observances.

To sum up: the Christmas of the building trade in these years is on the whole better for the workman than formerly, always excepting periods of marked depression such as have signalled the present year. Last December and the present December have been indeed "Christmas weather," as these words are now understood; our winters beginning in the old year instead of commencing in the early days of the new. The Christmas, however, brings hope still to many hearts, and give employment to many in the arts and handicrafts, particularly in their relation to book printing, illustrated works, toys, presents, and articles for ornamentation. Many artists, printers, engravers, and workmen of cognate trades at or before Christmas are ministering to the enjoyment of the young, their special arts alone leading to an enormous outlay of capital for the production of works and sundry useful and ornamental articles. The Christmas brings some profits too, through the course of events, to architects, builders, and workmen, for little can be done in these days without the services of the building branches being enlisted.

As Christmas has, more or less, been our theme, we wish all our readers in anticipation a happy Christmas in concluding our remarks.

### THE LIFFEY AND DUBLIN HARBOUR— PAST AND PRESENT.

ARCHÆOLOGICAL AND ENGINEERING NOTES.

SIXTH PAPER.

ACCORDING to Mr. Griffith's paper there was little reference to the proposed northern wall from 1802 till 1819, but it is not to be inferred from this that there was no public anxiety to hasten the improvements of the port. Apart from the intention of the Ballast Board, and in different directions there were from time to time sundry suggestions for improving the navigation of the channel, and effecting improvements by reclamations on the north and south sides of the harbour or on the Clontarf and Merriion strands. We will cite some of these proposals as we proceed. In 1806 the Directors-General of Inland Navigation reported on the various schemes up till that time, and they thus expressed their opinion:—"Considering, therefore, the objections, the expense, and the difficulties which may occur in the execution of all except the pier from the north side of the harbour, we desire to defer them until we see which of them be matter of indispensable necessity." The Ballast Board had no reason to feel disappointed in the

above conclusions, although their design was fated to be longer delayed from being put into execution. The report of 1806, as will be seen, is in favour of the great North Wall. However, Rennie's report and the great conflict of opinion among other engineers and improvers of the time had the obvious result of retarding the work of the improvement of the harbour, for in the face of this great divergence of opinion that existed the Government were unwilling to make any grants to the Ballast Board. Possibly there were other reasons at the time why the Government of the day did not assist, but the reasons given were sufficient. In the meantime for several years the Ballast Board used its surplus revenues and pursued its work of improving the channel along the Great South Wall, and in replacing the old rubble wall by new walls, faced with granite ashlar. The sand excavated and not required for ballast was used in backing the walls.

In 1814 steam dredging was introduced, the dredger having a bucket ladder projecting beyond the side of the vessel, while the crab winches for altering the position of the vessel while dredging were worked by hand. Doubtless many of our citizens have, as we ourselves have, a lively recollection of these old steam dredgers, which for several years seemed an institution floating on the river between the walls or hetimes in the channel between Ringsend and Poolbeg. These old steam dredgers, though a sight to attract for the first time, did solid and useful work.

The money obtained in 1814 by the Ballast Board (£100,183) from the Government for the site of the Pigeon House Fort was used by the Board to discharge a portion of their debt, and the remainder—a considerable sum—was husbanded for the purpose of carrying out the favourite project of the Great North Wall. An accurate survey of the harbour was first determined upon, and this work was entrusted to one who performed his task with conscientious care and ability that reflect credit on his name, and inseparably link it with the history of the improvement of the port of Dublin. Of the survey of Mr. Francis Giles, Mr. Griffith writes:—"It was made with extreme care and in great detail, and forms a most valuable record in connection with the history of the port, affording a ready means of comparison with surveys of a subsequent date. Mr. Giles's datum now forms the standard low-water of the port, and to it the soundings given in recent Admiralty surveys of the bay have been reduced." Mr. Griffith explains further in a foot-note that this datum was the mean low-water mark of spring tides, as follows:—"At Dunleary (Kingstown) old harbour, from November, 1815, to March, 1816; at Howth Harbour, from May, 1817, to November, 1818; at Dublin lighthouse, from June to November, 1818. The mean range of the same spring tides was 13 ft.; the mean low-water of neap tides was 3 ft. 6 in. above datum, with a range of 6 ft. 6 in.

It is instructive to compare Mr. Giles's soundings in the bar in 1819 with the most recent one. At low-water of spring tides, according to Mr. Giles's soundings, there was a depth of 6 ft. 6 in. of water on the bar in the direct east channel, of 12 ft. to 15 ft. in the Poolbeg anchorage immediately inside the lighthouse, and at the deepest part of the Ford Bank east of the Pigeon House of only 7 ft., while west of the Pigeon House up to the quays from 2 ft. to 4 ft.

It certainly must be conceded that if any one could have been in a good position or duly qualified for reporting on the improvement of the harbour, Mr. Giles must have been that person, after he had completed his excellent survey. As he reported in compliance with the instructions of the Ballast Board, it might be imagined by some that he would naturally support their project of the Northern Wall. That he did cordially support the long-cherished scheme of the Board, is a patent fact; but his work and conclusions seem to have led to it. In supporting the construction of the Bull or Great North Wall from Clontarf shore, running out to the North Spit Buoy, Mr. Giles advised that an opening should be left at the shore end 600 ft. wide (that spanned by the timber structure), to allow of a free passage for the tidal waters north of the Green or Bull Island—i.e., the sand island on the North Bull. The opening in the wall at the Clontarf shore end was previously proposed in 1802 by Captain Corneille, but the Directors-General of Inland Navigation at the time objected, as they feared that the flood tide flowing through this opening would carry the sand from the North Bull into the harbour, doing more injury to the port than could be counterbalanced by the advantage gained by the proposed opening.

Mr. Giles supported his recommendation by the following conclusions, as given by Mr. Griffith:—1st. That the Green or Bull Island had accumulated to such an extent since the above objections were made, that it would act as a complete barrier between the North Bull sands and the channel to the north of the island, and prevent any risk of these sands being carried into the harbour through the proposed opening. 2nd. That the tidal waters flowed into the north channel from the west or Clontarf end as well as from the east or Sutton end, and ebb in like manner; and that as a consequence the proposed opening would still allow a large volume of water to ebb and flow westward, thus adding to the tidal capacity of the harbour. 3rd. That the opening would be advantageous for the carriage of the materials in lighters from Sutton during the construction of the wall; and, 4th. That in any case it would be prudent to maintain the opening till it should be finally determined whether additional tidal water would be required for scouring the bar, or till the opening was proved injurious to the interests of the port. Should additional water be required at any time, Mr. Giles proposed to close the east end of the channel with an embankment from Sutton to the island, thus forming it into an additional reservoir with a capacity of about 7,000,000 tons of water between high and low water of spring tides, which would necessarily pass through the harbour and ebb and flow across the bar.

In respect to the width of the entrance to the harbour at Poolbeg, it was left remain an open question by Mr. Giles's advice, until some progress was made in the construction of the Bull Wall, and its effects were made known. Originally he designed to raise this wall throughout 6 ft. above high-water of spring tides, and to make the entrance to the harbour, between the north and south piers, 500 to 700 yards wide.

In 1820 the Great North Bull Wall was commenced, the direction which it should take being the year previous jointly decided on by Mr. Giles and Mr. Halpin the then



engineer of the Ballast Board. Besides sheltering the harbour it was believed that the direction chosen would be advantageous in reducing the risk of damage to the work from south-easterly gales. The work when commenced was carried out with great expedition. The principal material used in the construction of the Bull Wall was rubble stone from the limestone quarries in the Fingal district, or north of the city, and the granite quarries on the south of the bay.

It may be noticed here that although little over half a century has elapsed since the wall was finished, still a large amount of ignorance exists concerning its construction and the motives that led to it. Even in the Clontarf district, and among those who have been all their lives living within sight of this wall, strange accounts are given of the work. The old are seldom or ever correct in their statements or surmises, and the younger generation have got it into their heads that the Bull Wall is a very old wall indeed. We once asked a Fingalian, and a somewhat intelligent one in other respects, for what purpose the Great North Wall was built. We were assured that the object was to construct a roadway whereby the Great South Wall at Poolbeg could be readily reached, leaving just sufficient distance between the two walls for vessels to pass, and that ferries were intended to ply between the Great North and the Great South Walls. Our informant told us further that the wall proved a great failure after immense sums were laid out in its construction, as the sea washed the work away, and forced the constructors to give up their design as a bad job. Another informant came nearer the truth in his version. He believed the two walls were to be connected by a ferry when completed, but that the Ballast Board, after carrying the wall a considerable way out, and reaching within a stone's throw of Poolbeg, found they had miscalculated the force and effect of tides or waves. According to our second informant, the tides choked up with sand the entrance at Poolbeg to the harbour, and that the Ballast Board had to undo several hundred yards of the work they had executed, or otherwise large vessels would be unable to pass up to the city. This informant pointed to the depressed end of the Great North Wall—which certainly has always presented a ragged and unfinished appearance—as a proof that the wall had to be lowered for a considerable distance near the harbour entrance. Other amusing statements might be given of the views entertained among the people concerning the construction of the Bull Wall.

As stated by Mr. Griffith, the effect of the new wall soon became apparent in the increased velocity of the current past Poolbeg Lighthouse, and in alterations in the neighbouring sand-banks. These results caused some uneasiness for a time, and in 1822 the Ballast Board consulted Mr. Telford, the engineer. His report stated at that date a length of 5,500 ft. of this embankment or sea wall was finished to 6 ft. above high-water level of spring tides, 1,500 ft. to the level of high-water of neap tides, and about 500 ft. to half-tide level. The sand-banks inside the wall were found to be considerably lowered, and that part of the bar immediately opposite the entrance had been lowered 2 ft., resulting in the formation of a new and direct channel across the bar from 8 to 9 ft. deep at low-water of spring tides.

Telford considered the width of the entrance to the harbour still too great, and supported the engineer of the Ballast Board (Mr. Halpin) in his opinion that the wall should be extended, but that the further extension should not be raised above half tide level until its effects were fully understood. Mr. John Whedbey, who was consulted in the same year, appreciated the value of the work done, but recommended that any further extension of the wall should be postponed till more experience was obtained of the changes produced by the new works as they then stood. The Ballast Board, however, considering there was danger in further delay—danger to the consummation of their project,—and fortified in their own views by those of Telford, resolved at once in carrying out the extension as suggested by the latter engineer. The wall was completed in 1825, having cost £103,055 (Irish currency), or about £95,000 British. The assimilation of the currency of Ireland with England took place in the same year. The total length of the wall is stated to exceed 9,000 ft., “and it remains at present virtually in the same condition as when finished, except towards its extremity it has been somewhat lowered by storms and the undermining action of the scour.” The varying level of the wall, Mr. Griffith observes, forms a remarkable feature in its design, and, although presenting the appearance of an unfinished work, yet he believes, upon consideration, it will show how much care and forethought were bestowed upon the work by those under whose direction it was carried out.

The value of the Great North Wall is thus appraised:—“Fully to appreciate its value it is necessary to have a general knowledge of the currents in the bay, and for this purpose the most important fact to be borne in mind is, that on north side of the bay during the first half of the ebb, the tide runs westward towards the bay, and thence southwards in the direction of Kingstown, while during the last half of the ebb and the whole of the flood the tide sets eastward past the Bailey. During the first half of the ebb the tidal and river waters within the Great North and South Walls pass partly over the submerged portion of the northern embankment and partly through the harbour entrance between its termination and Poolbeg lighthouse. The current out of the harbour during this time is comparatively slack, and in no way interferes with the navigation of vessels in and out of the port. It is also probable it produces little or no effect in deepening the bar channel, but only joins the bay current, and sets south towards Kingstown. As soon, however, as the lower portion of the northern walls is uncovered, the remainder of the tidal and river waters within the harbour must pass through the contracted entrance at Poolbeg, which is only 1,000 ft. wide. The result is a great increase in the velocity of the current, which somewhat exceeds 3 miles per hour during spring tides, and a marked impression on the bar by the removal of sand. This sand-bearing stream joins the bay current which by this time is setting eastwards, and ultimately deposits on the North Bull a portion of the sand removed from the bar, while the rest is carried into deep water.”

As the tidal water entering on the flood from the south brings back some of that discharged on the first half of the previous ebb, it is worth considering whether it or the tide, as a whole,

would not bring back matter previously discharged, and this is a question for sanitary engineers and sewage disposers. It appears to Mr. Griffith, however, that, except at neap tides, but little of the water discharged during the second half of the ebb returns, in consequence of the current at the north side of the bay still setting east, and that the harbour is thus saved from injury by the return of sand upon the flood tide. It is argued had the Great North Wall been raised above high water level for its entire length there would have been a strong current through the entrance during the whole of the ebb. In that case, as put by Mr. Griffith, the current on the first half of the ebb would become a sand-bearing stream, and on meeting the opposing hay-current would either deposit sand and form another shoal more difficult to deal with than the bar, or be deflected to the southward and re-enter the harbour on flood, bringing back whatever sand was still held in suspension.

Both the Great South and Great North Walls have resulted with great advantages to the Port of Dublin, advantages that cannot be gainsayed. That the harbour of Dublin could not be improved otherwise than by the construction of these walls, would be saying, perhaps, too much, for it might have been possible, had the work begun in the last century of improving the port been proceeded with on different lines than those pursued by the Ballast Board.

In the last decade of the eighteenth century schemes of reclamation by embankments and by the aid of irrigation and warping were suggested for the north and south strands, as means towards the ultimate improvement of the harbour. In 1802, a writer already quoted was sanguine of these methods, though the reclamation of the foreshores would appear to be the most particular object he had in view. He spoke of the large tracts of ground in many parts of Ireland that were capable of improvement, but he particularly instanced the great tract of strand between the lighthouse and Booters-town, and between the same lighthouse and Clontarf. He wrote:—“I have frequently viewed these two strands, and I am perfectly convinced they could be easily reclaimed by the improvement suggested. If Lord Fitzwilliam or Mr. Vernon were sensible of the ease with which this could be executed, and the great addition it would make to their income, I imagine the suggestions of those unacquainted with such affairs would have little weight, for the sneers of ignorance have often prevented many improvements from being adopted, or even proposed, and may justly be added to the list of obstacles to the improvement of waste land. I have frequently pointed out the practicability of this improvement, and have been answered more than once, that £100,000 would not build a wall sufficiently strong to keep out the sea. I hesitate not to declare that, except for a sluice, *a single stone is not wanting*; and also that, if this idea had been originally adopted, the Ballast Office Wall [the Great South Wall] that cost such immense sums need not have been erected, and the greater part of the strand might have been long since in meadow, which would have added some thousands a-year to Lord Fitzwilliam's and Mr. Vernon's rent roll.”

What says the Dublin Port and Docks Board (the successors of the Ballast Board), or their present talented engineers, to the



above? There can be no doubt but the large tracts of sand mentioned could have been reclaimed, and it is probable that the large expanse of foreshore uncovered at low-water on the Clontarf side of the harbour will yet be reclaimed, although the Dublin Port and Docks Board are adverse to it, and indeed are prepared to oppose every effort in that direction. Reclamation is certain to come sooner or later for these foreshores, if not before the close of the present century, at least early in the next. Everything points in that direction—landlords' interests, building interests, public interests, and drainage and sewage interests with a view to the future of public health. As a matter of taste and liking, we would, perhaps, prefer to see the shores of Clontarf, and those of Merrion, Booterstown, &c., washed by the tides, and presenting at their recession the pleasant sight of a large expanse of yellow sands; but, for several years past, owing to the modern state of the Liffey through drainage and sewage matter, the sands of Clontarf lack their former wholesome condition. The length of the Great South Wall has prevented the sewage of the Liffey from affecting the southern foreshores to that disagreeable extent which is observable on the northern.

Large tracts of fens, slob lands, and foreshores have been reclaimed in different parts of England by embankments and irrigation, but in cases where tidal water was used the irrigation process is known by the name of *warping*. It is not necessary for us here to enter into details of how the embankments were constructed, or to describe the appliances used in these large irrigation and warping schemes. The improvements suggested were possible by the employment of such schemes; but in the case of the Dublin foreshores, we think it would have taken very many years before they would have effected any appreciable improvement in the navigation of the port. Were the projects of the Great South Wall only the suggestion of a quarter of a century ago, and the Great North Wall an idea of yesterday, doubtless modern engineering science and the facilities it has made available could be used with a multiplied force and energy for works of foreshore reclamation and harbour improvement by systems of embanking and methods of irrigation or warping. The harbour of Dublin is, however, much improved, and is still being improved; and the work of foreshore reclamation, north and south, is a work for the future, and its accomplishment is inevitable, and only a question of time.

We have yet to consider the results of the construction of the Great North Wall and some later improvements, with other matters connected with the growth of Dublin Harbour.

#### WEATHERPROOF WALLS.

THE following remarks on the above important subject, from the pen of Mr. W. H. Lascelles, appeared in the columns of our contemporary the *Builder*, and we gladly reprint them for the benefit of our readers:—

It is pretty nearly universally admitted that in open situations solid walls are a mistake,—a long-continued wind and rain will penetrate the thickest wall. The wet, I noticed, came through granite walls 2 ft. thick, at Prince Town, on Dartmoor, in such quantities that resort has been had to tarring the exposed side, of not one or two walls, but of all the houses in the street, to

their great disfigurement. I have seen large damp patches on the inside of a house in Scotland, built of stone equally thick, and there are few people living in brick houses but have had this difficulty at one time or another to contend with. The remedy found most effectual is by battening off the inside of the wall, and finishing with lath and plaster, or building the wall in two thicknesses of brickwork, with an air-space between them. An objection to the battening process is, that it is hardly desirable to bring woodwork in contact with a wall that is occasionally wet, as danger of decay is thereby incurred. A difficulty with the hollow walls is the bonding tie, which is shown by the great varieties of contrivances continually brought out to effect this object. Another, is the loss of internal space. It is quite clear if two houses are built of equal external dimensions, one with solid and one with hollow walls, the rooms in the latter must be as much smaller as the width of the hollow spaces. A solution of the difficulty I wish to submit is, do not let the wet get in; make the outside of the wall of a substance that wet will not penetrate, and there will be nothing to get rid of. Instead of building brickwork to carry the floors I would substitute a wooden framework, just such as a carpenter would erect for a boarded structure. The sill should be kept well above the ground with a damp-proof course between it and the foundations; the scantling of the woodwork would be according to the size of the building. For a two-storied building half a deal, of 4½ by 3 would be strong enough. The woodwork should have two coats of lime-whitewash, which I believe to be a most simple and excellent preservative, and the upright pieces or studs should be 3 feet apart, centre to centre. No braces are necessary, but may be put to use up short stuff. The outer wall would be formed by screwing on a slab of concrete 3 ft. wide and 2 ft. high and 1 in. thick, provided with four holes, one in each corner. If it is wished to prevent the appearance of wall-tiling, slabs are provided with a tile-pattern cast on them, of a red colour, that penetrates the slab and will not come off with a related horizontal joint and a butt-vertical joint; this will cost 5d. per foot super., and should be stopped in red cement. I did walls this way four years ago, and now they are weathered they look equal to wall-tiling. Another plan is to screw on a plain slab with the rough side outwards, to form a key for the finishing work. If the appearance of brickwork is preferred, a coat of red cement and sand is put on, finished with a wood-float and tuck-jointed in lime-putty in the usual way. If stone is required, cement and sand with a wooden float and ruled joints give the ordinary stucco-work. Rough cast is produced by a slight coat of cement and sand allowed to harden, then another coat of the same, then small gravel and liquid cement thrown on with a dasher. The effect of half-timber, weather boarding, or anything, can be produced; in fact, the walls of the house may be likened to a sheet of paper, and can be decorated to any extent, and in any way. Chimneys should have 1½ in. slabs, costing 4d. per foot super., for the fronts and backs, with an extra thickness at the back of the grate; the chimney divisions are 2 in. thick, and made of concrete specially prepared to hold a screw, as the back and front slabs are screwed with the divisions with ordinary carpenter's screws, and they hold exceedingly well. The houses I referred to as having been built four years since, have chimneys of this kind, and no fault has been found with them. The inner walls have the inch slabs screwed to wooden studs, and are finished with cement and sand, or lime and sand. It will be seen that, by this simple mode of construction, I have produced a hollow wall with a minimum of material, say 3 in. of concrete and plaster, and a 4-in. space. A 7-in. wall is compared to a brick wall of 14-in., and a 3 in. air-space, occupying 17 in. of ground. The cost of the outer walls and plaster may be taken at 6d.

per foot, fixed, and the inner wall at 5d., and say 3d. for the studding, giving 1s. 2d. for the wall complete. The value of a hollow-brick wall, with picked facings and internal plastering, may be taken at 1s. 6d. per foot; this shows a saving of 4d. per foot in favour of the concrete wall, and an addition of 10 in. to the size of the room. The weight per square of the concrete wall, as described, would be about one-fourth of the weight of a 14-in. brick wall, effecting a considerable saving in railway charge and cartage.

#### THE TWENTY-FIRST VOLUME OF THE IRISH BUILDER.

##### A NOTE.

THE present issue of the *IRISH BUILDER* completes its twenty-first annual volume, and, consequently, the publication, as the only professional one of its kind in this country, has lived for the space of twenty-one years. As a portion of time, twenty-one years is but a matter of small moment perhaps; but in the life of a man or of a journal it is a somewhat considerable space. A journal that has lived for such a period proves that there was a necessity for its existence, and that it has, by its conduct and advocacy, proved equal to the want. We have never been given in these pages to sound our own praises, although we have always insisted upon claiming the children of our brain when illegally fathered by body-snatchers, who claimed them as their own creation by disguising them in a new dress. We are certain that during the last twenty-one years we have acted honestly by the architectural and building professions, though our advocacy has not been confined to one interest alone. We have, as the demands of the age increased, appealed to a much larger constituency, and interests more varied than those inscribed on our title-page. Thus we have grown with the growth of the time, presenting the public of this country with a journal which we hope is worthy of its position, and which, anon, will prove that it can command success by deserving it. The opening number of our new volume will afford us an opportunity of saying something more in general and particular; but these few words may not be out of place as we close our volume for 1879.

#### CLONTARF PUBLIC BATHS COMPANY.

A MEETING of this company was held on 2nd inst., at Messrs. Bagots and Hutton's, William-street, to consider terms of lease, the allocation of shares, &c., and also matters connected with Mr. Sloane's design. Several letters were read from architects, offering their services on terms supposed by themselves to be more than ordinarily favorable. This, to say the least of it, is strange conduct in face of the knowledge that a professional gentleman had already been appointed; however, we forbear for the present publishing the names of these conscientious and honorable competitors, as no doubt the Council of the Royal Institute will take the matter up at their next matutinal sederunt.

BANK OF IRELAND.—The half-yearly meeting of the proprietors of the Bank of Ireland was held on Friday. A dividend was declared at the rate of 10 per cent., free of income tax. The chairman referred to the great resources of the bank and the transient character of the commercial depression.



# PROPOSED IMPROVEMENTS IN ARRANGEMENT OF DIOPTRIC LENSES FOR GAS SEA LIGHTS.\*

SIMULTANEOUSLY with the introduction of gaslight into the Howth Bailey Lighthouse in 1865, by Wigham's patent, a want was experienced in the formation of the lenses that were to be the media through which the flame was to be assisted and refracted in its course. This want still exists; and although I have thought of several methods of getting over the difficulty, I have not been fortunate enough to meet with a contemporary or rival in the field. In November, 1873, having some spare and quiet time at my disposal whilst residing at the shore dwellings of the Calf Rock Lighthouse, Dursey Sound, on the extreme west of the County of Cork, I addressed a letter on the subject to the Commissioners of Irish Lights, who, although remarkable for their warm advocacy of every design having for its object the better illumination of the coast, cannot in this case have considered the subject worthy of their attention, for the matter was never heard of beyond the mere official acknowledgment of my letter, and the gaslight, with its steadily increasing improvements, is still obliged to submit to the questionable effects of unsuitable lenses. At that time considerable interest was manifested in comparative trials being made with gas and other lights at the Parliament Houses at Westminster, and I did not hesitate to assert that if means such as I then proposed were taken for the adjustment of the lenses at lighthouses, the strength of the light would be increased in a considerable ratio.

Experiments had been made with the view of showing photometrically the strength of different flames, but such were, in reality, comparatively of little value, the eye of the mariner being the best photometer; educated eyes may, with the instruments available, determine quantitatively the amount of light given out at certain times in certain places, and such trials have, of course, their interest, but no photometer has as yet been invented that will give reliable results as to the relative value of any light, especially when that light is compared with one of a different colour, and obtained from a different source.

I approach this subject with some diffidence, and if I did not consider I had something new to offer, would not venture on it at all; it has engaged the thoughts of men of deservedly high scientific reputation and great intellectual and practical resources, but with all the pursuit of inquiry has been the same; and no matter how great Mr. Wigham's success in improving the use of gas and applying it to lighthouse purposes, whether in the revolving, trifurcated, quadriform, or group flashing, he has not met with any corresponding efforts to supply him with lenses suitable to his increased flames; the results of his endeavours have been tested by the methods of photometry so far as known, but the media through which the flames are given to the eye of the mariner have been altogether lost sight of, although there can be no doubt that, under certain circumstances, the lenses used are occasionally to some extent an obstruction to the light.

It is rather strange that men who should know better will thoughtlessly adapt lenses to lights which do not require them, the lenses in all instances being for the purpose of intensifying that (as in the electric light) which already is too intense, and means of a dispersive nature would be more applicable. If, for instance, the lights at the north and south Foreland had lenses to assist them in volume as they have in intensity, the theoretical accounts of their strength, as valued by a certain number of candles, would not to the actual observer appear practically so worthless when compared with the photometry of his own eyesight as directed from

midchannel on a hazy night, as such accounts must do now.

The character for dispersiveness is that which makes the gas flame and its ready enlargement so much more valuable than any other light that has as yet been devised for lighthouse purposes, and within certain limits it is that power which requires the use of lenses to bring it under control. So long as the inventor confined his endeavours to produce a good light within the scope of the four-wick Argand burner, he had the advantage of the experiments and calculations made by M. Augustin Fresnel, and all the facilities that the result of these calculations in the dioptric apparatus could give, and had only to meet the angle of divergence determined on many years ago; his burner of 28 jets, being of same diameter, was so far placed *ceteris paribus* in a fair way for comparison, but the moment Mr. Wigham commenced to use larger flames, so did the angle increase in such a ratio that it appears paradoxical that he could procure any satisfactory results whatever, and is an immense evidence of the value of practice in lighthouse optics as compared with theory. This practice cannot be had in the studio or lecture-room; the atmosphere, with its continuous changes, presents phases to the attentive observer only to be caught and taken advantage of by an unceasing watchfulness on his part, a constant noting of the experience of others, and a knowledge of what certain materials in certain changes of weather will effect. Thus, gas, oil, and electricity have each their spheres and times of usefulness, as also the composition of the different media used to assist or transmit the light. Glasses of certain mixtures have their value in certain places, and colours produced by different substances, although appearing in the laboratory all but identical, differ widely to the eye of the mariner. To test lenses from the glass works of St. Gobain, in Picardy, by formulae only suited to those of Birmingham, could not be said to show much optical knowledge, and yet the author knew such to be done at Aranmore in 1876 by men of great responsibility and supposed to have a good knowledge of the subject, and hence this digression to direct the attention of his brethren to a matter of no small consequence, viz., lighthouse optics—one especially dwelt upon by the Royal Commissioners on Lighthouses in 1861,\* when, in their report on the immense weight of evidence before them, they called the attention of the engineers of these kingdoms to the necessity for a more particular study of the subject than had hitherto obtained.

From whatever reason, my design was never acted on; to test its usefulness in the experimental room at Howth would have been neither troublesome nor costly. If I ever had an idea of protecting it by patent, that has long passed, and my only wish now is to give it to my scientific brethren in the hope that its worth may be by them appreciated.

The method of illuminating lighthouses by gas differs from any other in use in the changes of focus consequent on each increase of power; in the other systems each light or flame has a fixed position relative to the reflector or refractor used to augment its strength—thus the dioptric apparatus, of whatever order, has its regulated diameter of flame adjusted in connection with the other portions of the instrument, the whole forming a structure at once elegant, finished, and complete. In the catoptric arrangements, although strength is acquired by a multiplication of flames, yet the burners are each set in the focus of a separate reflector of a size and capacity strictly regulated to the work it has to do—the angle of least divergence calculated that any number of reflectors placed side by side blend their light so that at a very short distance the effect is as of one great illumination.

The dioptric light of the first order has a flame of nearly 4 in. diameter, and is the centre of the series of lenses which are fixed in connection with it at a distance of 920 millimetres. These lenses are polyzonal, and were first brought to perfection by the eminent French engineer, M. Augustin Fresnel—a man whose high intellectual endowments have given his name a world-wide notoriety. In designing his large or first order lens, he chose the radius of the apparatus of which it should form a part, evidently with respect to the diameters of existing lighthouse lanterns, and so as to leave sufficient space for the service of the lamp-lighters or keepers. The calculations of the many elements comprising the centres of curvature, and the ordinates and co-ordinates to these centres, were all made to give to the central flame a maximum divergence of about 5° 9', and these dimensions have been preserved in all the subsequent manufactures, in whatever country or workshop they may have been wrought.

In devising his gas flame, Mr. Wigham adhered to the original design of Fresnel, and the first order gas lighthouses have their lowest power burner of the diameter suited to the first order lenses, receiving all the advantage and augmentation possible to be derived from that source, and by a highly luminous core the inventor has contrived to give an intensity to the flame in the centre of the burner which, by reducing the angle of greatest divergence to a minimum, adds in an enormous ratio to the power of the light. The method employed, as you are probably aware, to increase the illumination as required by different changes of the atmosphere, is by adding on to the normal rings of gas jets, which, by increasing the diameter of the flame, add to the divergence so much that, although the central 4-in. burner holds its position and power, the additional flame gains little or nothing from the lens, and depends on the gas for its increase of usefulness.

From observing this I was led to enter on calculations with a view of possibly rendering the apparatus in use available to meet the case, and contriving some method by which each annular polyzonal lens could be moved into a position that would agree with the increased diameter of the burner, and preserve to a certain extent the angle of 5° 9'. My experiments were necessarily rude, but sufficient to show me that I could not attempt to improve in one case without doing injury in the other—if I reduced the angle with the 48 jet burner, I increased it with the 28 jet—and that the lens would not serve two masters. There would be perhaps not so much difficulty with the upper or lower series of reflecting prisms, but experience has shown me that these are of little consequence, and should not be considered, if at all interfering in any attempt at improvement. I was well aware that there was an opinion prevalent that in lighthouse lenses, where so near an approach to accurate convergence to a single focus was unnecessary, every purpose is answered by the partial correction of aberration that may be obtained by determining an average radius of curvature for the central disc, and for each successive belt or ring as it recedes from the axis, and this was, no doubt, the case in the earlier stages of manufacture; but although this averaging would give a margin which might admit of a certain amount of shifting of the lens with advantage, I was in one sense agreeably disappointed in finding that the workshops of Paris with the St. Gobain glass are producing optical apparatus for lighthouses of a class that could hardly have been expected by the designer, and that do not admit of any deviation from the focus.

In January, 1876, assisted by my son, I tested in the experimental rooms of MM. Barbier and Fenestre, at Paris, the lenses for the great revolving light at Aranmore, in County Donegal, and which formed the optical portion of the apparatus supplied (to my design) by Messrs. Edmundson, of this

\* By Mr. John Swan Sloane, M.I.C.E.I., &c., late Engineer to the Commissioners of Irish Lights. Read at Institution of Civil Engineers of Ireland, December 3rd, 1879.

\* Report of the Commissioners appointed to inquire into the Condition and Management of Lights, Buoys, and Beacons, &c. Presented to both Houses of Parliament by command of her Majesty, 1861."



city, for the Commissioners of Irish Lights. From the extreme accuracy of every portion of this work, I was convinced that lighthouse optics had advanced in a ratio that would leave all hope of any margin from rude or imperfect workmanship (requiring averaging) in future out of the question, and this was the more particularly impressed upon me when I found that the difference between the calculated focus and actual image on the testing-table did not exceed four millimetres, and in some of the lenses came as low as two, being due to the superior finish that the French give in their final or "cushion polish," which, flattening the curve (although almost imperceptibly), increases the observed focal distance. This became pleasingly more apparent in a few months afterwards when I tested in the same *atelier* the lenses—32 in number—for the great light at Galley Head, in County Cork, the largest in the world, also supplied by Messrs. Edmundson, and furnished with their quadriform group flashing light; and from the beauty and high refrangibility of the French glass, the accuracy to be obtained through the superiority of the grinding machinery, and the intelligence of the workmen, I have come to the conclusion that, to give each change of flame its proper consequence, it must have a separate lens.

In lighthouse economy expense should never cause a thought when in the balance with the safety of life and property; but, unfortunately, this consideration has not the weight in some places that it should, and a lens more or less might form a red-tape obstacle in the way of an improvement; and my lengthened experience makes me almost dread to propose a lens for each change of flame. I will hail with gladness any design that will solve the difficulty; but I can safely say that at present the higher powers of the gas-light get no help from the lenses; they merely retain what is due to the 4-in. flame lying latent in the 11-in., or the 68, 88, or 108-jet burner, as the case may be. Apart from the familiar engineering difficulty of pounds, shillings, and pence, is the difficulty of designing a method of so arranging the lenses as that each, in its course, could be brought into use simultaneously with the change of burner; each lens, although capable of easy movement, should be as susceptible of retention in its proper position, when that position had been attained. The original formulæ of Fresnel (excepting in the first instance) should be lost sight of, and each lens be ground to preserve an angle of divergence of five degrees—these latter being only mere workshop considerations, giving little or no trouble, out of the ordinary way, for any of the lighthouse optical engineers of Paris.

Much has been said and thought of the electric light. It can be seen, and has been seen, with every advantage that science and art can give to it, but no one has ever yet seen the 108-jet gas-burner assisted in any way, and it is difficult to imagine what its effect would be placed in the focus of a specially prepared lens of St. Gobain glass—the nearest approach to which, in England, that I have seen, is the crown glass of the Union Works; but I doubt if they could compete in price with the French, nor am I aware of their having, as yet, any facilities for grinding and polishing. Other English workshops aim at giving their glass too white a colour—the result being softness in texture and a want of transparency, with frequent faults in the final polish and a general want of finish—the inferiority being at once apparent to the most casual observer who walks along the Rue de Rivoli, the Boulevards, or looks into the shops of the Palais Royale in Paris.

Some years ago the French had these faults in a high degree; and the plate-glass of sixty years since, wherever found, will have acquired from the sun a crimson-purple tinge, as will be seen in many of the older houses in our squares, in lighthouses, and several of the mansions of the gentry in the country. I have seen many instances of this discolouration, but

that at the Smalls Lighthouse, erected in 1878, was the deepest I had witnessed. The cause (I have been given to understand by, perhaps, the greatest authority in these kingdoms) was too great a quantity of manganese in the mixture, which, although imparting a beautifully clear whiteness in the first instance, rapidly acquired the red tinge when exposed to the sun's rays. As there can be no doubt as to the comparative ease with which suitable lenses can be obtained in the various workshops of the lighthouse opticians, the principal difficulty becomes one of fitting, or erecting, each in its place, and the more I reflect on it the more formidable it appears. But there is a circumstance connected with a great number of the coast lights that will much assist in the solution. I allude to their not requiring illumination on the land side, and, in many instances, a lesser amount of light in some sectors of azimuth than in others, thus leaving room for suspending, or fixing, the lenses in whatever way may be deemed advisable. Had my first idea of utilising the one lens to each change been feasible, my proposition would have been to move it along a slide to each focal length; for although this would leave a small space between the lenses—it being at the higher degrees of flame—would, from the blending of the light, be of little consequence. With the exception of Galley Head, which, being a quadriform light, will require a different treatment, the other gas-lit houses in these kingdoms have sectors of light as follows—viz., "Hasborough high light," 197°; "Hook Tower," 294°; "Wicklow," 220°; "Howth," 270°; "St. John's Point," 203°; and "Mine Head," 202°. Thus, so far as the gas has been employed, ample space is reserved in each lantern for the erecting of any framing that may enable the intensifying lenses to be brought into use, or otherwise, as occasion requires.

I would not propose to interfere with the upper reflecting prisms, but would, without hesitation, if necessary, sacrifice the lower, and by suspending the different annular polyzonals between wrought-iron grooved frames of light but (from their section) rigid description, with pulleys and balance-weights make their use comparatively easy. At Hasborough, Howth, Wicklow, and Mine Head, two panels, representing 90° of azimuth for each augmentation of flame to seaward—i.e., six lenses in addition to those at present in use—would, from the situation, be sufficient. For Hook Tower I would propose nine lenses in addition to the eastward, in three groups—in either case the lenses of each power to be attached, so as to move up and down within the frames as one, somewhat like an ordinary sash-window. There would then be a set for the 28 and 48-jet burner, inclusive, and for the 68, 88, and 108, in each degree or point of azimuth; and as all the lights I have mentioned are fixed, or have apparatus suited for fixed lights, the object would be easier of attainment than if revolving.

It may be interesting to glance at the probable expense of this addition, and, approximately, it may be taken as follows, viz:—

Annular lens, first order .. ..	£55
Wrought-iron framing-weights, pulleys, and chains .. ..	15
Workmanship, in erecting .. ..	5
	75
For Hasborough, Howth, Wicklow, and Mine Head, about .. ..	450
For Hook Tower, about .. ..	675

In either case a comparatively trifling sum, when considered in relation to the immense advantage to the mariner, and to the great saving that the gaslight has effected since brought into use on the coast, unlike the electric light, which has been a source of great expense, anxiety, and uncertainty, and useless in fogs, or even ordinary thick weather."

[A section through a first-class lighthouse lantern accompanied this paper, shewing the method of changing the annular lenses from the normal strength of a 28-jet burner to that

of any of the higher powers. It should be remembered that in fixed lights the lenses are cylindrical. One of Mr. Sloane's improvements consists in using annular lenses ground to the increased foci and diameter of flame, but retaining the approved angle of 5° 9'.—ED. I. B.]

## ADVERSARIA HIBERNICA,

LITERARY AND TECHNICAL.

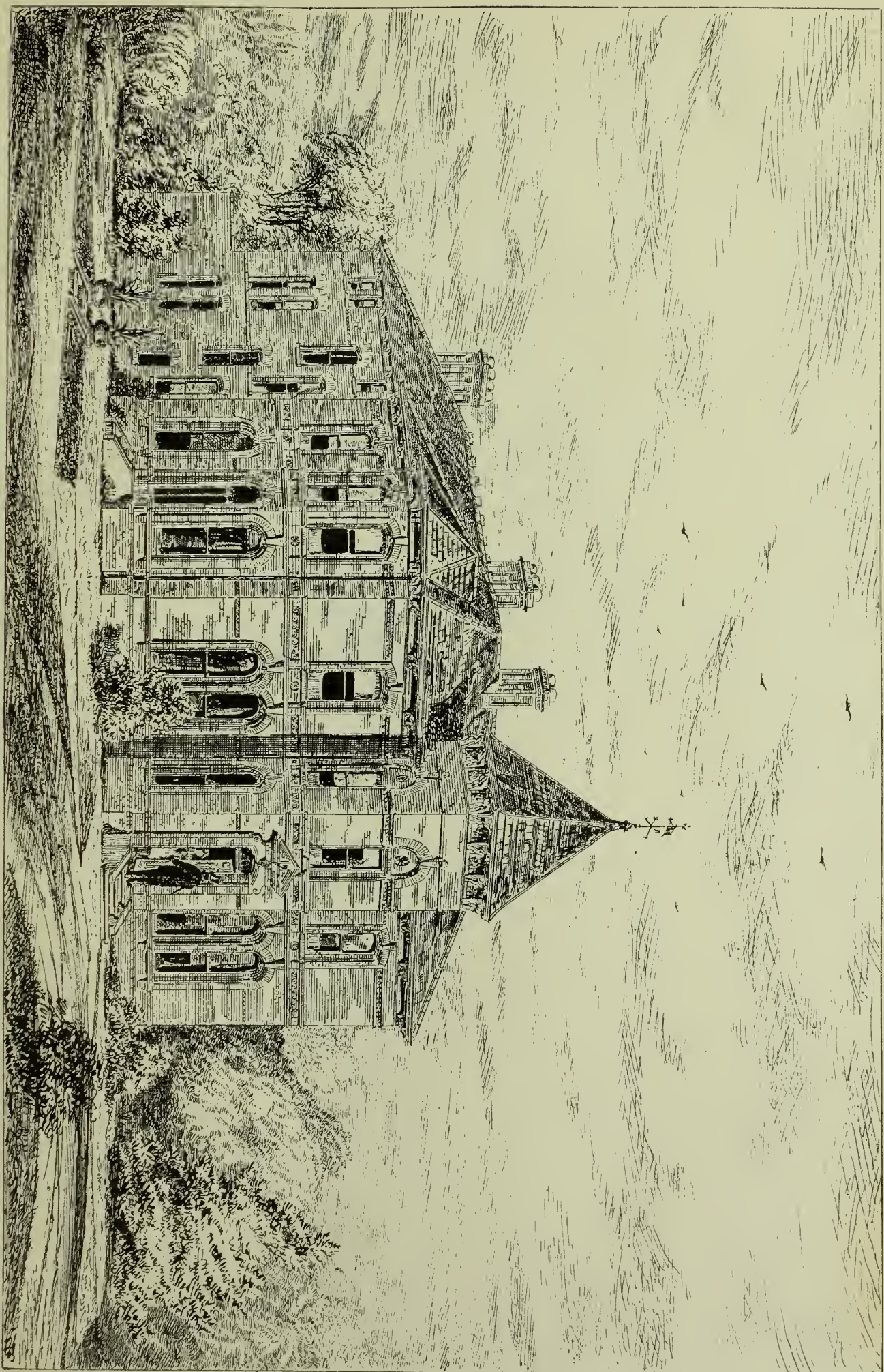
The district of Fingal in the early part of this century and previous was noted for its fame for farming and its "ploughing matches." The "practices of Fingal," as they were called, were much boasted of by sundry persons, and for a considerable time announcements of Fingal challenge cups for ploughing and systems of tillage were the order of the day. Then came the "Fingal challenge plough," but the old Irish plough died a hard death, and for years contested bravely against the Scottish one. A wooden plough would now be a great curiosity if exhibited at a show of the Royal Agricultural Society; but the wooden plough did good service in its day, or rather the ploughmen and horses did, for it was rather a heavy and clumsy instrument, and had little iron in its composition. The ploughs in use for the last three-quarters of a century, except in distant parts of the country, have been wholly of iron, except the hand-pieces, which were let into the shafts or arms of the implement; but several ploughs were made, arms and all, of iron, with no sockets; but these felt very cold to the hands of the ploughmen, and they were wont to wrap the ends around with pieces of cloth or hay, to give a warm feel to the hands.

When the Scotch plough was introduced into Dublin, some Fingal ploughmen and others outside protested against its use, saying that it would kill the horses, &c. About the year 1800 there was a ploughing match at Castleknock, where the beam of the plough used was of very great length, the mould-board being very long and high. When the plough had entered the ground, the ploughman threw himself almost on his left side, thus loading his monster plough-board with nearly 4 cwt. of earth, and this he carried to the other end of the field, where he threw it off, but not without considerable exertion, to enable him to turn. The old farmers of that day, or not a few of them, considered this mode of loading the mould-board was necessary to keep the plough steady, instead of keeping nearly an upright position. The Castleknock farmers, however, prized the man who carried the greatest weight of earth and kept his left hand nearest the ground—a practice which still obtained down to our own time in Fingal and other places, irrespective of the plough used. Now the Castleknock system of ploughing was not good ploughing, for it left the ribs of hard earth untouched, which, in a retentive soil, was prejudicial to the crops, and prevented the water from draining into the furrows.

Fingal and other Irish farmers objected to ploughing deep, in dread of turning up the bad earth, though it is at present pretty well known that it is very beneficial to turn up a portion of the deep earth every year. Deep ploughing, gradually carried out, has the same good effects as deep trenching or sub-soiling in kitchen gardens. Cross-ploughing has long been practised in the County Dublin, and in past times it had its good uses on land that was ploughed only in the shallow way mentioned at Castleknock.

After the introduction of the Scotch plough, Irish manufacturers took to the making and improvement of ploughs, which received a fair amount of patronage from Irish farmers. The old Dublin firm of Messrs. Nugent and Orson, of Henry-street (represented down till a few years ago by Messrs. Nugent and Son, coachmakers, Denmark-street) exten-





VILLA AT BELMONT, NEAR BELFAST, FOR WM. EWART, ESQ., M.P.



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sively manufactured farming implements in the early years of the present century. Messrs. Nugent and Orson sold at their manufactory, from the 24th of October, 1800, till the 25th of March, 1802, 119 ploughs, mostly after the Scotch model; and from September, 1801, till March, 1802, 31 drill harrows, chiefly their own improvement on a former model; and every other kind of improved agricultural implement in proportion. Now this was not bad trade for one firm in the matter of ploughs; but there were several other Irish makers throughout the country turning out ploughs, exclusive of the large number imported.

A premium from the old Farming Society of Ireland was obtained at Ballinasloe in October, 1801, by Owen Wynne, Esq., of Hazlewood, County Sligo, for his invention of a plough. A writer on agricultural topics of that day, speaking through the information of others, said that Mr. Wynne's plough "bids fair to accomplish the wishes of agriculturists, and is therefore likely to be brought into general use." Whether it was so, we know not; but at the period many other gentlemen also were giving their attention to the improved construction of ploughs. About the date of which we are writing these "improved ploughs" were rather high in price, and beyond the reach of small farmers, few ploughs being sold for less than six or seven guineas (Irish, we suppose).

Oxen were formerly often used for ploughing by Irish farmers, and sometimes horses and oxen in the same draught. Mixing oxen and horses was a great mistake and most unwise, for slow-paced bullocks and the quick-stepped horse were a bad match. The mode of driving plough beasts, even down to our own time, was a cruel one; but here is a passage from a contemporary writer of the early days of the present century:—"I have frequently examined plough goads, that had a sharp spike above an inch long at the end, for the purpose of teasing these poor patient creatures, and I have not a doubt that if the skin of a weak or slow ox could be stripped off, it would be found like a riddle. The ignorant ploughman and his careless master look on with indifference, whilst an ill-tempered ruffian is indulging this infernal disposition." This is certainly not a nice picture of Irish pastoral life in the "good old days," when no Society for the Prevention of Cruelty to Animals existed. The writer of the above extract hinted very wisely that if the farming societies of his time withheld premiums from ploughmen and farmers that permitted cruelties to their beasts in any department of their work, it would doubtless have a good effect. Beating on the head and punching cattle with a 10 ft. goad was a general practice, and we fear it has not quite died out yet. Bull baiting and cock fighting are no longer legalised, and pugilism is at an end, though in part practised by stealth, despite the law. There are many good farmers in Fingal who evidence at the present day, as they have done for years, improved husbandry, but some odd notions still obtain in the district.

Pendant to the above, we have on record that a steward advertised in the first years of this century, that amongst his other qualifications he was "well acquainted with the practices of Fingal," and on being examined he maintained that less than six horses in a plough could never answer in any ground, and that undoubtedly fallowing was absolutely necessary and superior to any other preparations for corn. It was a long time before the Fingal and other Irish farmers could be got to turn their attention to green crops, still holding to grass and hay, and hay and grass as the best food for cattle. They gave way at last and began, commencing with vetches and mangold, turnips, &c., in course of time being more extensively cultivated for winter feeding. Most of our old farmers were content to take one good crop of corn in the year from the soil, and they could not see how they could raise two; but times have

changed, and with the aid of education and a little science, farmers in general lose no time after one crop is cleared to replace it by another. "On my late father's farm," writes Hely Dutton in 1802, "near Malahide, I have seen thirty-three barrels of very fine wheat sold off two acres of ground, which had not been manured in the memory of man, and produced a crop of oats the preceding year, the quantity of seed sowed was only two bushels; this has been frequently exceeded in Ireland, and ought to stimulate farmers to make exertions; for surely it must be a wretched system of cropping that permits land of this fertility to remain every third year worse than unproductive, and open their eyes to the ruinous course they are blindly pursuing."

Dutton and his father were seedsmen and florists, and had an establishment in Dorset-street towards the close of the last century. Many farmers in the last century did not reach within a long way of the produce per acre obtained by Mr. Dutton and a few other good farmers of that period, indeed they were fully content with much less. The average crop was estimated at six barrels of wheat of 20 stones each, 10 barrels of oats of 14 stones each, and 9 barrels of barley of 16 stones each. By the extension of potato culture, the raising of early potatoes and of clover, in some places the average was afterwards raised to 8 barrels of wheat, 12 barrels of barley, and 14 barrels of oats. In Arthur Young's "Eastern Tour" we are given a yield of 29 barrels of oats and upwards to the acre, and in the "Annals of Agriculture" 30 barrels of the same; but these were in cases of the best farming, and with land in high cultivation, and farmed by practical and educated farmers. Young also gives us a yield from 25 to 28 barrels of barley to the acre, and the "Annals of Agriculture" 29. Of wheat, the latter authority gives a yield of from 18 to something over 21 barrels per Irish acre. The 23 barrels of wheat at Malahide off two acres of ground "which had not been manured in the memory of man," was, however, a fine yield for Fingal farming on an improved scale nearly a century ago.

Writing in 1802, Hely Dutton observed:—"The late Mr. Christopher Brangan's, of Swords, was an exception to the general mode of culture in the County Dublin. I saw about three years ago, at his farm in Collinstown, at one time, potatoes in drills set and taken up by the plough; vetches for soiling horses, red clover for the same purpose; red clover sowed amongst flax, &c. This farm is adjoining Mr. Domville's farm of Cold Winter, near the Forest, and when I saw it, it was in the same wretched, wet, commonlike state in which this gentleman chooses to keep his different farms in the County Dublin. Mr. Brangan made underground drains, spread limestone gravel and other manure, and left it one of the best farms in Fingal; it is more than probable it will fall into the old darling course—wheat and oats, wheat and oats—until completely exhausted." The Mr. Domville above mentioned was the Domville of Sautry. The Brangans of Swords and vicinity, and the Fagans of Feltram, with other names that do not just now occur to us, were among the most noted farmers of Fingal in the last and earlier part of the present century.

As we have devoted so much of our allotted space on the present occasion to Fingal practices and farming, let what we have written be taken on the archæology of Fingal farming. As a wind-up on the present occasion, a few words about the past habitations of the agricultural population of the district (and indeed other districts, for the one picture answers all) will not be out of place. What was written in Arthur Young's time of the housing of the agricultural population still holds true in many cases, and what was remarked respecting the County Dublin, by Dutton, is still true in part. The lapse of eighty years or nearly has not rendered the following remarks out of place or inappropri-

ate to the present time:—"Nothing can be a greater reproach to the landed proprietors than the wretched appearance of labourers' cottages. Covetousness, want of spirit, or carelessness, are the general causes. If a landholder builds a miserable hut, which costs him only £10, he charges at least 40s. per annum, some, as Mr. Archer says, the enormous rent of £3 or £4. . . . It is surprising that persons of the least spirit can bear to see such wretched hovels near their houses, yet they are to be seen in almost every county." Some landlords in the past boasted that they accommodated their labourers with cabins gratis, but the truth was, though the labourers paid no money in the ordinary way, they were obliged by agreement to pay the rents in labour, which was always exacted, and to an extent that paid several times over for the value of their wretched cabins. The housing of the Irish agricultural labourer, though it has certainly improved in several districts within recent years, still thousands upon thousands of wretched mud hovels exist in every county in Ireland. Even the district of Fingal, in the vicinity of Dublin, contains hundreds of wretched mud cabins scarcely a whit better than their models of eighty or fifty years since. Indeed many of the Fingal labourers are worse off than those more inland, for they have no bit of land (except in very rare instances) allotted to their cabin whereon they could cultivate a supply of potatoes and vegetables.

All agricultural labourers on large or small farms, whether under gentlemen farmers or general farmers, should be allowed a small patch of ground, or otherwise they should be given allotments like the English labouring poor, for which they would pay a moderate sum yearly, according to the extent of the allotment. A small patch of land or an allotment infuses a spirit into the labourer, and he will take pride in its cultivation after his ordinary day's labour for his employer is done. The labouring man's wife and grown children also would find useful and pleasant employment sometimes on the "allotment." The owners of the soil, big landlords and big farmers, have been long standing in their own light. A great change is impending in connection with the land. It may come through acts of Parliament, and it may come otherwise, but, when it does come, we hope that the condition of the cultivators of the soil may be wonderfully improved, for a very great improvement is necessary in all that appertains to the land. We are preaching no mere party politics, but we hold that the soil of the country can never become truly productive and the mine of wealth that it should be until the industrious and law-abiding tillers are better housed, better paid, and better fed. Give the cultivator a better interest in the soil he cultivates than a mere rent-paying occupant, and the condition of the day labourers will improve. Improvement must commence from above to proceed well and without friction. The good acts of the wealthy will find imitators in a proportionate degree by the members of those classes below them. Improvements from below, though sometimes successful, are always violent, nor is it to be wondered at. Such revolutions are always possible when moderate counsels are despised, and the selfishly strong and wealthy will not aid in improving the world themselves, nor let others aid them. He that succeeds in improving the land and all thereon may be considered a benefactor of his species.

H.

ABBEYLEIX UNION.—In response to the second advertisement from the guardians, Mr. Waldron was the only candidate for the office of clerk of works, and was unanimously elected. Mr. Foster called attention to the chilliness of the board-room, and said it was at considerable risk to their health that the guardians sat there for two or three hours. It was agreed, after some conversation, that the clerk of works should examine the room, with the object of devising some plan of making it comfortable.



## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

## THE PRESIDENT'S ADDRESS.

THE opening meeting of this body was on Monday the 3rd inst., at 9 Conduit-street, London, the rooms in which occupied by the Institute have, during the summer, been considerably improved and rendered more commodious than heretofore.

The president, Mr. John Whichcord, F.S.A., delivered the inaugural address, portions of which we print below. After giving a sketch of the Institute's progress, and mentioning the various losses by deaths, he proceeded:—

I am not able here to enter upon any minute comparison of the modes respectively adopted by the municipal authorities of Paris and London for the improvement and embellishment of the two great capitals. It would be rash to suggest and futile to hope that this enormous metropolis, entangled with every sort of legalised complication both of land and house, will ever present to living man anything like the metamorphosis that has been lately witnessed by less than a generation of Parisians. It is sometimes said that the Empire ruined France in order to rebuild her capital and adorn her chief cities. But throughout France the small towns and villages are prosperous; the large cities are continuing and completing vast improvements. The Republic has given to Paris a thoroughfare more splendid, and with greater rapidity, than had been known during the Second Empire. It is also said, and I believe with truth, that the great works we have seen executed in France have not "paid," as people in England understand the word; but at least the French are now relatively no poorer under the infliction. Do the improvements in this city and metropolis "pay" according to the English meaning of the term? Perhaps I may venture, as a man of business, to doubt whether a new thoroughfare can be a paying improvement when, as in the case of Victoria-street, Westminster, land on each side of it remains for years unsold and unlet. I have heard say that Northumberland-avenue will not turn out a "paying" improvement unless the land on each side of it be speedily let or sold. A comparatively long time has elapsed since the Metropolitan Board of Works submitted to the council of the Institute any elevation of new buildings proposed for erection in that avenue; and, as you know, the board is bound so to submit such elevations. I find that, in the board's last annual report to Parliament, the delay in letting this land is attributed to the general depression in business, and to the expensive character of the buildings required to be erected. But when it is remembered that in Northumberland-avenue the foundations to the new buildings must be unusually expensive, and that the restrictions as regards dominant rights of light encouraged by the present mischievous state of the law are numerous, it might have proved true economy to have put the ground-rents at a scale that would have attracted immediate investors. I cannot refrain from comparing the desolate condition of Northumberland-avenue, situated in the very heart of London, with the brilliant achievement of the Avenue de l'Opéra, carried out by our neighbours in the space of a few months, and at a time when the political and commercial conditions of their country were certainly not superior to our own. I regret also that many undoubted improvements, due to the in-all-other-respects wise action of the board, should have been executed without adequate regard to the architectural embellishment of the metropolis. . . .

The subject of "illicit commissions" has again been brought before the public, and a temperate letter to the *Times* from Sir Edmund Beckett, recently afforded an admirable comment upon the present phase of the difficulty. Our course, as a corporate body, is clear. The declarations taken by our members were framed many years before it was discovered in the newspapers that a

great deal of unrecognised dishonesty existed in almost every rank of the community. It is generally admitted that there are black sheep in all folds; it was then laid down with a show of authority that in the architectural fold all the sheep are black. But time has brought its softening influence to bear upon our well-intentioned maligners; they have felt the impropriety of making against the whole profession a charge which could not be made with impunity against individuals. Two years ago the council, in their report, which was adopted by the Institute, declared themselves ready to co-operate with the Legislature in order to prevent and exterminate what in an architect, who is the fiduciary agent of his employer, is neither more nor less than fraud. So far we are in the straight path. There is, however, one detail of architectural practice,—often forced upon professional men who happen to be situated at a distance from the large provincial capitals,—which offers to the outsider an easy handle of criticism. It lies in the mode of payment adopted for bills of quantities. In London and the chief cities these bills are prepared by specialists, and there is no absolute necessity for an architect to prepare bills of quantities for his own works. As a rule, he does not take out the quantities, nor does he derive any pecuniary benefit from them; but when he does, the declaration taken by both Fellows and Associates is sufficiently precise. The words in the case of a Fellow are:—"I will not take out quantities except for works to be executed under my own superintendence, and then only with the concurrence of my client: such quantities being paid for by him;" and in the case of an Associate:—"I will not take out the quantities for works to be executed under my own superintendence, except with the concurrence of my client, and unless the said quantities are paid for by him." In making these quotations I hope I may be considered to have the interests of our profession at heart, for my object is to inform outsiders of the obligations accepted by every one of our professional members, rather than to remind the members themselves of the discipline to which we all voluntarily submit. . . .

The reasonable conservation of ancient and mediæval monuments is a question too important to be ignored by architects or omitted in your president's address. That news of a reported restoration of the west front of St. Mark's Church, at Venice, should be received in this country with some dismay is natural and explicable. Nor have Englishmen any right to expect foreign nations to take a similar interest in the old churches and cathedrals of these islands. Even presuming it possible now to destroy or mutilate a mediæval building in Great Britain or Ireland, the misfortune would not be felt by the Italians, because similar works of the same character abound throughout Western Europe. America might justly complain—Italy never. But there is only one Venice, and the history of our modern world begins with Rome. Hence the anxiety of Englishmen for the original works of Italian masters; hence their excuse for a protest which, under other circumstances, would have been impertinent. Indeed, after an uninterrupted experience of many years, thinking men in this country are beginning to appreciate the real meaning of what, after all, is a comparative novelty both in practice and phrase. You will remember that Viollet-le-Duc was very clear on this point, for in past times no people ever "restored" as the word is understood at present; neither the Latin nor the Norman-French contained any word equivalent to the modern term of restoration. The classical and mediæval architects pulled down, altered, added or rebuilt, as necessity dictated or authority required, and to this fact is largely due the multitudinous variety of architectural precedents. The substantial records of every known nation show architecture to have been, though artistically conservative, a progressive science. To attempt to maintain that every useful building is to be left untouched if only it be

old, and that every useless obstruction is to remain an obstruction, if only it be beautiful, is a paradox opposed to the very principles upon which our forefathers constructed the self-same buildings that now delight the many, and render a few enthusiastic people almost inconsistent. The architect is both an engineer and an archæologist. He must, as a rule, when arrived at the three cross-roads of the proverb take the middle one; he is neither free to follow the engineer alone, nor the archæologist alone. He cannot, like the engineer, be "the first by whom the new is tried;" he must not, like the archæologist, be "the last to lay the old aside."

The inquiry, now being prosecuted, into the statistics of damage to buildings by electrical action is one of more importance than many have possibly imagined. Existing knowledge on the subject, even among men exclusively scientific, has long been admitted to be slight and imperfect. The Meteorological Society of Great Britain is therefore doing good service to both architects and engineers in collecting statistics with a view to the ultimate publication of a general code of rules for the construction and fixing of lightning-rods. I believe that a great number of facts relating to actual damage and escape from the effects of lightning at home have been already obtained, and that further information on the subject has been promised from various parts of the world.

I have no doubt, when the different items of information are put together in a scientific manner, that we shall be enabled to publish in our Proceedings a synopsis of the same. And I would venture to make a few passing remarks upon the fact that we are now arranging in one annual volume everything having to do with the public business of the Institute. With this object our Proceedings or "Notice Papers" now comprise, in one uniform regularly-paged publication, reports of council, balance-sheets, estimates, general notices, lists of members, lists of prizes, reports of speeches, and so on. I have urged that, in future, the many communications we receive from our honorary and corresponding members shall be printed, if not *in extenso*, at least in extract, in these Proceedings. It has also been decided to send, at the close of each session, an annual volume to all our honorary and corresponding members; so that starting from this session, every one of our 868 members, of all classes all over the world, will be in receipt of our publications. It is, therefore, most desirable that the character of the papers read here, and that of the discussions which follow them, should be worthy of the subjects it is our custom and privilege to examine,—useful contributions to the half-art, half-science, that we practise and uphold. There is no lack of literary work offered or suggested to us; our want lies in the difficulty of obtaining practical expositions of current subjects connected with architecture. If I may follow the thought of my predecessor in one of his excellent addresses, it is of little use or interest for us to be argued into a belief that one style is better than another, or even that one phase of æsthetic design is more delicate than others. A see-saw of rhetoric exists to prove the futility of such discussion. I would venture to say that papers upon practical subjects,—on the best system of combining materials in different situations, on the best results obtained from experience of iron and concrete, or of building houses that will resist fire, on modes of construction adopted in other countries, on the application of steel, of terra-cotta, of plasters, and cements, to modern habitations,—are likely to be far more welcome to the majority of members within our own circle, and far more useful to everybody outside it, than the most learned dissertation upon the mutability of fashion, or the wittiest homily on the perversion of taste. I trust that, among the papers to be read here this session, those of a scientific and practical character will predominate, if



only to balance the apparent tendency of our day to depreciate the value of that scientific basis upon which the art of architecture is founded.

With the Proceedings to which I have referred, it is determined for the future to issue notices and communications made by the Architects' Benevolent Society to its subscribers and donors. The president of the charity is a past-president of the Institute, —Mr. Wyatt,—who is now good enough to give us, in the responsible post of honorary secretary, the advantage of his tact and experience. Moreover, our secretary,—Mr. White,—has, since this time last year, undertaken to act as honorary secretary of the Architects' Benevolent Society, so that henceforward the business of the charity will be conducted in the office of the Institute. A similar arrangement has long existed at the kindred Institution of Civil Engineers, where the secretary,—Mr. Forrest,—is the honorary secretary of the Engineers' Benevolent Fund, and the council of the Institution act as the directors of the charity. Such a combination has been attended with marked success. The maintenance by the Civil Engineers of their charity offers a comparison by no means flattering to ourselves, for the Architects' Benevolent Society has never, I believe, received that support from the profession which it deserves.

(To be continued.)

### THE CORK-HILL

AND

### CASTLE-STREET IMPROVEMENT.

IN our last issue we spoke of this long-talked-of and delayed improvement, and urged its commencement as soon as possible. Since the date thereof a meeting of an influential character has been held in the Chamber of Commerce, attended by the leading merchants of the city, to consider the proposed new street, or, in other words, the direct continuation of Dame-street to Christ Church Cathedral. There was a general concurrence as to the necessity of the improvement, and the Corporation were strongly urged to expedite their action in the matter. The gradients of Cork-hill, as we have often stated, are very steep, being in some places, we believe, 1 in 12, in others 1 in 17, and 1 in 24. Under the scheme of the City Engineer, a gradient of 1 in 47½ would be substituted, which is certainly a great reduction, and one calculated to wonderfully facilitate the traffic. At present the ascent for man and horse is very trying, and indeed many carters employed by firms in the western part of the city go (some miles, we might write) out of their way to avoid the hill. It was stated by one of the speakers at the meeting that the returns made to the Corporation show that the total cost of the work would be £32,000, the estimated value of the sites £10,000, leaving the net cost £22,000. It is calculated that the interest on that sum collected as a tax over the area of the present bridge tax would amount to a farthing in the pound on the valuation. We fear that the above calculation may prove fallacious to a certain extent, but that in no way renders it the less imperative. Indeed it may be found that the compensation to be paid in a few instances will prove considerably heavier than has been anticipated. Few of the houses in Castle-street are very valuable, indeed several ought long since to have been pulled down as uninhabitable and dangerous. Near Castle-street corner and on Cork-hill, facing Dame-street, there is some valuable property, but its value is more in the light of a trade interest than otherwise; but such interests, of course, claim every consideration, when the claims put forward are not unduly inflicted. Whatever may be the cost of the Cork-hill and Castle-street improvement, the work is urgently called for, and everything conspires—public health and public convenience particularly—to expedite this long-delayed improvement.

### THE SHANNON DRAINAGE WORKS.

A CORRESPONDENT thus reports progress as to the visible signs of the starting of public works, and providing employment for the labouring classes:—"That the long-talked-of Shannon drainage is at last to become a reality is now evident from the extensive preparations which are being made all along the banks of the river. A large supply of wheelbarrows, shovels, pickaxes, and other implements have arrived at Meelick, where the principal portion of the work starts. This will consist in the removal of the existing weir, the cutting of a great channel 200 ft. wide, and the erection of a powerful sluice for regulating the discharge of water. The Killaloe weir will also be removed, but it is not yet stated whether the works will extend above Athlone. Mr. Lynam, of Ballinasloe, will be the resident engineer in charge, and Mr. Robert Young, C.E., will have charge of the Meelick district under him. From 400 to 500 labourers will find employment, and it is said that the works will occupy close upon two years. Such a circulation of money as must result will not fail to have a most beneficial effect."

### LIGHT AND SHADE.

#### ANNIVERSARY THOUGHTS.

Brains are brooding and fingers are busy,  
Hearts are still hopeful and hands are strong;  
Men are climbing to heights that are dizzy,  
But few are keeping their hold there long.

Through boyhood and manhood, late and early,  
Sweat of the brain and sweat of the brow  
I, too, have given, like others, fairly;  
But what does it matter where and how!

The serious cycle of life is nearing,  
And on my hair I can see some frost;  
Hopes after hopes may be disappearing,  
But the signs of age are never lost.

One may build up the fame of another,  
And sleep an unseen foundation stone;  
E'en sire and son and brother 'gainst brother  
Have often lived for themselves alone.

Upward, upward, still young hearts are climbing;  
I'll pass them soon in my journey down.  
Many must fall in the race they're timing,  
And few, though they live, can wear the crown.

The year is waning, my life is passing;  
But hope I'll be still while I may.  
Years, not wealth, I'm only amassing—  
I'll score my fifty on Christmas Day!

December 12th, 1879.

C. H. C.

### IRISH PAVING STONES.

THE North Dublin Union Guardians some days ago urged on the Corporation the desirability of obtaining paving stones in Ireland. The Lord Mayor elect, after hearing the letter read at a late meeting of the Civic body, said it was rather cool for the Board of Guardians to send them the letter, assuming that the Corporation were not desirous as they possibly could be to obtain those stones in Ireland. Many members, continued the speaker, had, he knew, given most anxious attention to the subject, "but there was a difficulty in getting suitable stone in Ireland." Mr. Gray announced that he had himself got a letter from the Newry Granite Company, and he moved that the letter should be referred for consideration to No. 1 Committee. We do not see that the North Union Guardians should be rebuked for their considerate suggestion, for the Welsh whinstone episode of some years since, and other subsequent occurrences, gave rise to statements which we will not now revive. North of Ireland stone is used in the paving of one or more of the large towns of the north of England. If it be good enough for England, the same stone or similar is good enough for the streets of Dublin. Ireland imports a large quantity of building stone from England—

Portland, Bath, and other freestones,—and we would like to see her importing more, so long as we are able to reciprocate by sending in return large quantities of Irish marble and granites, the quality of which can not be exceeded in the British Islands. If, however, Irish paving materials can be had in this country of sufficient hardness or wearing durability, it is only fair that such materials should be procured and used in the pavement of the streets of the city.

### THE SEWAGE DIFFICULTY— RIPARIAN RIGHTS, EASEMENTS, &c.

#### AN IMPORTANT CASE.

*Edward Blackburne, Q.C., v. Catherine Somers and others.*—We give below the judgment pronounced in this case by the Vice-Chancellor on the 8th inst. Whether the judgment will be considered final or accepted as authoritative, and one which will govern all future cases of the kind, we know not. It is a somewhat important decision, and one not unlikely to suggest discussion hereafter:—

It was a suit instituted by plaintiff for an injunction to restrain defendants, a community of Loretto Nuns at Rathfarnham, from allowing the convent sewage to enter a stream passing through plaintiff's demesne at Rathfarnham. In the early progress of the case, the matter had by consent of the parties been referred to two engineers to ascertain and report whether any plan could be devised by which the nuisance could be abated without depriving defendants of the right of sending the sewage through plaintiff's demesne to the River Dodder. The engineers reported in favour of a plan—an underground pipe 12 in. in diameter, running 3 ft. below the surface of the demesne, and discharging at the Dodder gate of Rathfarnham Castle,—which would involve an expenditure of £1,400. When this report was brought in, the question arose as to which party should bear the expense, and, for the purpose of determining that, it became necessary to hear the case fully as to the right set up by defendants to a prescriptive easement to send the sewage through the channel in plaintiff's demesne. The Vice-Chancellor expressed his opinion that the stream in question was a natural and not an artificial one, as was contended on behalf of defendants, and that plaintiff was therefore entitled to riparian rights in that stream, and to have it uncontaminated, unless a right to pollute it had been acquired by prescription. Having considered the evidence on both sides he had come to the conclusion that originally the sewage from the premises now occupied by the nuns had been sent through the channel in question—through plaintiff's demesne into the Dodder, but that was at a time when the place was occupied as a private residence, and not by a large community. There were, therefore, two questions to be decided—first, whether a prescriptive right to pour sewage into a natural stream could be acquired, and, secondly, assuming that it could be acquired, whether there was such an increase in the nuisance here as altered the character of the easement. Upon a review of all the authorities his lordship was of opinion that such an easement could not be acquired; but even if it could be acquired, that in the present case there had been such an increase of the pollution as in point of fact entitled plaintiff to an injunction. If the increase was so mixed up with the right that it could only be put an end to by an absolute injunction restraining the whole easement, in this case plaintiff would be entitled to such an injunction. In consequence, however, of the consent entered into between the parties, an injunction was out of the question, and what remained for him to do was, under the consent order, to declare that defendants should carry out the plan contained in the report of the engineers, at their own expense, and that they should also pay the costs of the suit, including that of the reference to the engineers. Mr. Purcell, Q.C., applied that a reasonable time should be granted to his clients (the defendants) to carry out the proposed plan. The Vice-Chancellor consented.

**RATHMINES WATER SUPPLY.**—A letter was read from the Rathmines Commissioners at a late meeting of the Corporation, declining the offer of the Corporation for supplying the townships with Varty water, and stating that they expected to be able to procure a better supply at a higher pressure, and at a cheaper rate. A report from the engineer on the subject was referred to the Waterworks Committee to be printed, circulated, and sent to the Press.



### THE BUILDERS' BENEVOLENT INSTITUTION, LONDON.

At the 32nd anniversary festival of this institution, the chairman (Mr. F. J. Dove) in proposing "Prosperity to the Builders' Benevolent Institution," said "it had now an accumulated fund of £20,700, the interest of which sum, supplemented by the donations obtained at the annual dinner and by the annual subscriptions, was appropriated in payment of the pensions. The necessity for such a benevolent institution as that on whose behalf he was pleading was becoming increasingly felt from year to year. The building trade was one which had for many years been absorbing many trades which, thanks to the spread of sanitary knowledge through the labours of such men as Dr. Richardson, had now become essential for the erection of healthy dwellings. Architects now specified the adoption of more or less complicated sanitary appliances; and, accordingly, upon the builder there devolved a great deal of responsibility in connection with such matters—a responsibility which was leading to the absorption, by the building trade proper, of the special trades concerned in the manufacture and erection of such appliances. Besides this, the risks undertaken by builders in carrying out their works were constantly on the increase—risks of party-walls, risks of adjoining owners, risks of life and limb, risks of settlement, and, in fact, risks of every conceivable kind. The builder had also difficulties in dealing with his workmen, with the building owner, with the architect, and with the district surveyor; and finally, when he had completed his work, he perhaps had a great difficulty in obtaining the money for it. The last difficulty, added to the others, induced in some men a mental strain which prevented them devoting due energy to their business, which, under such circumstances, too often became a ruin and a wreck. The rapid growth of the building trade had been attended with great and sometimes bitter competition, and such competition, too, often ended in disaster. True it was that many men who had made colossal fortunes in such competition had nobly come forward to help the Builders' Benevolent Institution in providing in some measure for the wants of those who had been so unfortunate in the struggle for existence as to be suppliants at the threshold of the institution. Now, the pension granted by the institution to men was £30 per annum, which was not sufficient to provide for the wants of a man and his wife, but had to be supplemented in many cases by the doles of friends. He was of opinion that it would be a grand thing if, by the co-operation of the trade, the amount of the pension could be raised to £50. He felt sure that by a vigorous effort it could be done, and, although he was only speaking his own sentiments, for which the committee were not responsible, he felt quite sure that if the committee were provided with the necessary augmentation of means they would be only too happy to increase the pension to £50. Few in that company, however wealthy, knew how long it might be before, by some unfortuitous combination of adverse circumstances, they might be overtaken by misfortune and placed in a position to need the help of the institution. Therefore, he said to all 'While you are in a position to help, lend your help, and that most heartily.'

### INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting of the Institution was held in the Museum Buildings, Trinity College, on Wednesday evening, 3rd inst., Mr. John Bailey, president, in the chair.

The following were balloted for and duly elected: As members—Hercules F. A. Robinson, John Wigham Edmundson, Marmaduke Backhouse, B.A. As associates—Edward Ardagh Long, George Moyers, LL.D. Council and officers for year 1880—president, John Bailey; vice-presidents, Parke Neville,

William H. Mills; other members of council, John A. F. Aspinall, Thomas Fitzgerald, Richard A. Gray, Charles F. Green, John P. Griffith, William Lewis; associate members, Charles Geoghegan, Thomas S. Martin; honorary secretary, John Chaloner Smith.

The chairman announced the receipt of a letter from the Institute of Mechanical Engineers, London, respecting rivetted joints, and soliciting communications from their members through the council on the subject.

Regret was expressed at the unavoidable absence, through ill health, of Mr. John S. Sloane, member, whose paper "On Proposed Improvements in Arrangement of Dioptric Lenses for Gas Sea Lights" was announced for reading on that evening. We give the paper (which was read by the honorary secretary) on another page.

In the discussion which followed,

Mr. John R. Wigham said—The first observation which I would make on Mr. Sloane's able and interesting paper, to which we have just listened, is respecting that portion of it which refers to photometry; and although I am aware that Mr. Sloane has had more experience in practical photometry, and indeed in the general question which he brings before us to-night, than perhaps any gentleman in this room, I venture to think that he is hardly correct when he says that no photometer has as yet been invented that will give reliable results as to the relative value of any light, especially when that light is compared with one of a different colour and obtained from a different source. Photometry has of late years become a well-understood art, and its manipulations have been brought to great nicety. When lights of very different dimensions are compared, special apparatus is necessary for conducting the experiments; but Mr. Sloane is perfectly right as to the great difficulty, if not impossibility, of photometrically comparing lights of different colors, such, for example, as the electric light and gas light.

Some time ago the Board of Trade ordered careful experiments to be made to ascertain the comparative powers of my large gas lights and the largest oil lamps used by the Trinity House. These experiments were made at Hasbro, where there are two lighthouses identical in construction, one of which was lighted by gas and the other by oil. In these experiments we enlarged the standard by three steps; first we had the standard sperm candle consuming 120 grains per hour; 2ndly, a gas burner equal to 20 such candles; and 3rdly, a gas burner of five times more power, equal to 100 candles. The various powers of the gas burner were compared with this 100-candle burner, and the result will be seen in the table which I have placed on the wall, thinking it might be interesting to the members of this Institution. It will be seen that the smallest size is the 28-jet burner, having an illuminating power of 429 candles (this is the size mostly used for street illumination). The larger sizes are formed by adding rings of 20 jets each. You will also see that the highest power of the oil lamp is 722 candles, while the highest power of the gas light is close on 3,000 candles. These experiments, which were conducted by Professor Valentin, under the direction of Dr. Tyndall, and in the presence of the late Captain Roberts and Mr. Sloane, were so thoroughly satisfactory to the observers that, although representing different interests, they all agreed as to the accuracy of the results.

I only thus refer to photometry because of Mr. Sloane's allusion to it, but I am quite prepared to admit that, as far as I am aware, no photometer worthy of the name has been yet invented which will satisfactorily compare distant lights, that is, that no man looking at two lighthouse lights from a distance, say, of miles can pronounce as to the photometric value of their relative powers.\* He may, by interposing an obstruct-

\* This quite agrees with Mr. Sloane's assertion in his paper, although the speaker previously doubts its correctness.—Ed. I. B.

ing medium, ascertain that one light is more powerful than another, but not the extent to which it is more powerful; and this leads me to the main argument of Mr. Sloane's paper, which is, if I understand it right, that lighthouse lenses are so constructed that the admitted superiority of gas flames over oil is not fully available to the mariner. Now, as far as the actual light which reaches the mariner's eye in clear weather is concerned, it cannot be denied that Mr. Sloane has good ground for his opinion, the lenses of almost all the existing lighthouses have been calculated and made to transmit to the observer all the light that falls upon them from a 4-wick lamp, the flame of which has a diameter of about 4 in., and is in height also about 4 in. It therefore follows that when a gas burner is placed in the focus of such a lens, and that the diameter of the flame produced by that gas burner and its height are greater than that derived from the oil-burner, portion of the flame will be ex-focal, and will not be utilised by the lens in the same manner that the flame of the oil lamp is utilised. But two very important considerations here arise:—1st. That in increasing the size of the flame you also largely increase its intensity, and that that portion of the enlarged flame which is interfocal, that is, the part which strikes the flame adds much to the power of the light, and that this increased power of the light is caused by the addition of what may be termed ex-focal flame; and 2ndly, the light that is entirely ex-focal is yet not to be confounded with ordinary diffused light, but falling upon all parts of the lens at a certain angle it is refracted to a corresponding angle, and thus becomes directed light which travels on as definite a path and with as little divergence as the focal light proper; but, being directed downwards and upwards instead of straight forward, it illuminates the sea near the base of the lighthouse and the atmosphere over it, so that in thick weather the mariner can see the position of the lighthouse by the effect of the light upon the haze or fog when the light itself is invisible, and thus, perhaps, saving him from shipwreck, the usefulness of that ex-focal light is apparent. I have received the most undoubted testimony as to the effect of this light upon fog.

Any gentlemen present who are members of the Institution of Civil Engineers in London are aware that this subject of ex-focal light has been one of much controversy between Mr. Douglass of the Trinity House and myself. While he was unable to deny the correctness of the photometric observations which were made at Hasbro, he affirmed that the superior power of the gas light was not equally apparent at sea, but the printed observations of the Elder Brethren of the Trinity House, who conducted the experiments, and of Dr. Tyndall, who accompanied them, show that the reverse was the case; and if another argument were wanted to prove the value which the Trinity House attach to ex-focal light, it is found in the fact that, notwithstanding Mr. Douglass' theoretical opinion on the subject, they established a 6-wick lamp at Hasbro, the flame of which is much larger than that of the flame of the burner for which the lenses were designed; and when both lighthouses came afterwards to be lighted by gas, they fixed for the standard clear weather light the 48-jet burner, the flame of which is much larger than the 4-wick oil lamp, for which the lenses were designed. I may say here, in passing, that if the introduction of gas as a lighthouse illuminant has had no other good result, it has stimulated the authorities to introduce a better oil light than they heretofore have used, and has induced them to copy the arrangement, by means of which gas can be turned down and economised, in the new 6-wick lamp, the centre wicks of which can be thrown out of use in clear weather, the glass chimney (which is not necessary in the case of gas) giving considerable trouble in this manipulation of the wicks.

The object of Mr. Sloane's invention is to



render all the lights of the large fog powers of the gas burner focal, and he proposes to do this by providing a special lens for each of the five fog powers, bringing each into operation when the respective power for which it is suited is in use. Now to my mind, Mr. Sloane's idea is exceedingly valuable, and would be found, if put into practice, of enormous benefit to navigation, provided it were used with biform, triform, or quadri-form lights; for in these cases there would not only be the greatly augmented size and power of the focal gas lights due to its being placed in lenses specially designed for it, but there would also be a large amount—still greater than at present—of that ex-focal light which is so valuable in thick weather to the mariner. As to the details of Mr. Sloane's invention, that is, the mode of fixing and arranging those large lenses so as to be applicable on short notice, I do not offer an opinion, inasmuch as he does not clearly indicate that.\*

As to the question of economy of outlay with which Mr. Sloane concludes, I am one of those who believe that Government should not permit, of course within reasonable limits, cost of first outlay for improved apparatus for lighthouses, or even cost of maintenance to weigh against usefulness to the mariner. I heard the respected secretary of the Board of Trade, Mr. Farrer, when he was examined before a committee of the House of Commons, say that the cost of a lighthouse is as nothing compared to its value to mariners. He also stated that that was always the principle upon which the Board of Trade had acted in controlling expenditure. Let us hope that when Mr. Sloane's invention has been brought before the Board of Trade, Mr. Farrer will remember the principle he has thus laid down.

Mr. Wigham exhibited photographs of lighthouse interiors containing 28-jet and 108-jet gas burners; and a photograph of quadri-form apparatus at Galley Head; also a model showing the system of placing lenses on the triform plan.

The discussion was also joined in by the chairman, Messrs. W. C. Smith, W. P. Griffith, Robert Manning, J. A. Fahie, &c.

A vote of thanks having been passed to Mr. Wigham for the practical information he had given the meeting on the subject of the paper, and with the hope that he would shortly favour the Institution with a communication himself,

The meeting adjourned.

## CORRESPONDENCE.

### THE SKELLIGS LIGHTHOUSE.

TO THE EDITOR OF THE IRISH BUILDER.

SIR—May I, through your invaluable publication, call the attention of public opinion to the state of the Skelligs Lighthouse? It is one of the old system of "tin kettle lights" and was to have been improved in 1870, when the Teraght was lighted, but the Board of Trade wanted the money to send the Trinity House men on a pleasure trip to America, and so in spite of Mr. Farrer's declaration before Parliament "that the cost of a light was as nothing compared with its value to mariners," the Skelligs, the great landfall for vessels from the west, is no better than it was 40 years ago,—indeed it is worse, as paraffin oil is now the stuff that is burned in it, and 550 galls. are on their way from Dublin, if the *Princess Alexandra* steamer does not blow up with the *fright*; if she does, Mr. Farrer will not be inclined to give another, and your Dublin Ballast Board are too weak to insist upon it, they are so loth to offend the mighty Board of Trade, but they should beware of how they offend the shipping interests of the world.—Yours,

JAMES FITZGERALD.

Port Magee, Valentia.

### THE ARCHITECTS' "RING."

TO THE EDITOR OF THE IRISH BUILDER.

SIR,—I can hardly suppose you will believe that there are in Dublin men calling themselves architects, who have formed what is popularly known by the Americanism of "a ring," and are actually touting for clients? However, I merely tell you the tale as 'twas told to me, and I beg you will publish it, and so

"Take arms against a sea of troubles,  
And, by opposing, end them."

For there is no doubt that the respectability of the Council of the Royal Institute of the Architects of Ireland would not for one moment brook the idea that such could exist in our city if they were advised of it, but be up and doing to stamp it out.

*Apropos* of this I will, with your permission, relate the following: Some twenty-five years ago I designed a building, which within the past month was destroyed by fire. Being very busily engaged for some parties who wanted money to carry out improvements in drainage and farm buildings, I could only telegraph to one of my assistants to look out the plans and papers connected with the former work, as Mr. — would probably call at my office on the subject. Passing through Limerick, I heard there from a brother professional in course of conversation that Mr. — had engaged the services of a certain young aspirant, and thinking I would if possible elicit the reason of my being passed over, I wrote my old friend the following letter:—

Clontarf, Nov. 25, 1879.

SIR,—Although out of town when your house in — was destroyed by fire, I was not unmindful of your claims on my attention, and in case you had required my services you would have met in my assistant every courtesy. I have learned that Mr. — is to be your architect, and can safely say you have made a very good selection; but from certain matters that I have lately heard, I will presume on an old friendship, and ask you whether you have any objection to say why I was rejected, and what led you to employ Mr. —? Pray do not suppose that I could for one moment dream of dictating to you in your choice.—I am, sir, yours, &c.,

JOHN S. SLOANE.

Dublin, 27th November, 1879.

SIR,—I am in receipt of your's of 25th inst., and beg to say that on the morning that I came into town and found my premises destroyed, my natural perplexity was not at all diminished by seventy letters from various persons claiming to dictate as to my choice of an architect, and before that day was over their number increased to 102. I have had several since; one gentleman, a builder's curate, was the theme of thirty, and he would do all I wanted, even to designing furniture, and superintending painting, decorating, and glazing, for 4 per cent.; however I gave myself little trouble about him, although he was well supported by the church. The gentleman I have engaged did not in any way solicit me. He was standing looking at the ruin, and we met by the merest chance. I quite agree with you that my choice has been a good one. Had you been in the way no one should have been before you, but I heard from one party that you had retired from business, and from another that you were too ill to do anything, and so had been shunted by the Ballast Office.—Yours, &c.,

John S. Sloane, Esq., C.E.,  
Clontarf.

I believe that this is a fair sample of what is going on amongst certain would-be professionals, and where I can meet with such I will not only send a statement to the Council of the Royal Institute of Architects of Ireland (although not deemed worthy by them of being a member), but ask you to publicly advertise it.—Yours, &c.,

JOHN S. SLOANE.

Clontarf, 8th December, 1879.

[A few independent men like our valued correspondent would soon, by exposure, stamp out any nefarious combination, if such exists.—Ed. I. B.]

### "TENDERS AND CONTRACTS."

TO THE EDITOR OF THE IRISH BUILDER.

SIR—Your able article on tenders and contracts in last number, with the bit of news

from Bagdad (which I venture to say is an adaptation from the *General Anzeiger*) makes me desirous of exposing a system that is now largely in practice in public companies, railway and otherwise. I allude to the idea conveyed in the printed papers that the architect or engineer or superintending officer shall be the judge as to whether the terms have been complied with.

Three years ago I obtained, with some trouble, a contract for tanks, in the tender for which, after a long description of plates and their thickness, each tank was to be of a certain weight and subject to the engineer's approval.

My great experience caused me to doubt the correctness of the specification, and on making a vessel and weighing it I found it two hundredweight heavier than expressed in the tender. I applied to the secretary, who told me the sizes were those of a great London firm, and could not be wrong; and as I saw remonstrance was useless I made the tanks to size, and agreed in my own mind to lose by the weight. Next year I thought I would recoup myself for the loss, and proposed at a higher price for the contract; but a rival was before me, and whether he lent "tomans" or not I can't say, his contract was chosen, his tanks were found correct as to weight, but the thickness of the plates was not enquired into. On appealing to the engineer (for I went to Dublin for the purpose), he said they had been examined by a competent foreman (who I have since ascertained is by trade a hedge carpenter, and know by experience to be a most impertinent fellow). "But," said the engineer to me at parting, "how could we ascertain the thickness of the plates? The weight is the true test." "In my case," said I, "I will bore a hole in any plate you like, and stop it up again when you have examined it." But all to no use; my rival again got the order for the tanks. I had them weighed as they were landed on the North Wall Quay of Dublin; not one could have been of the specified thickness, and not one was examined by the engineer, who is above his business, and leaves these supposed minor matters to a foreman who knows nothing whatever of iron; but I am not surprised at this, for I knew the cement for a great public work to be left to the testing knowledge of a cabinetmaker. I may add that the engineer is himself by trade a bricklayer. With such facts as these, we need not wonder at anything detailed in your Vienna contemporary, nor go to Bagdad for curiosities in the practice of tenders or contracts.—Yours, &c.,

C. SMYTH.

Bucklersbury, London,  
9th Dec., 1879.

### NOTES OF WORKS.

Messrs. Ross and Murray are the contractors for works in connection with a supply of water to the town of Loughrea, at a cost of £3,351.

NEWRY.—The local *Telegraph* says that Mr. James Fennell has nearly completed a new grain store at the rear of his mills, near Bridge-street. This store is of a novel and exceedingly ingenious construction, and is entirely the idea of Mr. Fennell, under whose personal superintendence it is being erected. The only materials used in its construction are wood and iron. Its height is 45 ft., and it is divided into six compartments, capable of containing 200 tons of grain each, and in centre of building will be a screw conveyor.

Agherton Episcopal Church, Portstewart, has been re-opened after some works of enlargement, reparation, and embellishment, under the superintendence of Mr. Thomas Drew, of this city. The account in local press is highly eulogistic, but a good way from being a correct architectural description, "but such things will happen." We are glad to hear, however, that the local public are satisfied with the designs of the architect, and the work of the local tradesmen respectively employed in building, fittings, and embellishments.

\* In the paper it is stated that the lenses could be moved up and down somewhat like an ordinary sash window.—Ed.



**RELIEF WORKS.**—The Earl of Kenmare, through his agent, S. M. Hussey, J.P., has employed 250 heads of families for the purpose of opening new roads on his extensive estate in Co. Kerry. Other landlords in same county are borrowing large sums from the Board of Works for works of improvement.

A new organ, built by Messrs. Telford and Telford, of St. Stephen's-green, for the parish church, Kentstown, Diocese of Meath, was opened on Sunday, 7th inst., by Mr. J. C. Culwick, organist of St. Anne's Church, in this city.

### THE INTERNATIONAL DAIRY SHOW.

BESIDES the exhibition of fat cattle, sheep, swine and poultry, with which the premises of the Royal Dublin Society were engaged during the past week, there was an International Dairy Show—the first of the kind held in Ireland. Some time ago the Rev. Canon Bagot and Mr. James Robertson visited the chief centres of butter-making on the Continent, the results of which visit have been given to the public in a very elaborate report. The Shelbourne Hall afforded last week a capital area for the display of butter and butter-making machinery, &c. In the centre of the hall a considerable space was enclosed with a gallery around it, and there the neatest of French, German and Swedish maids went through the routine of butter-making according to the methods followed in their countries. Visitors to the show had, therefore, the advantage of contrasting side by side the different systems, and of learning the opinions of competent judges upon their merits or defects. The scrupulous cleanliness of the dairymaids, the attention paid to the most minute details, to the testing of the temperature of the milk at the different stages of the process of churning, and to many matters which would be considered by many to be of minor importance, must have struck the spectators forcibly. Next in importance to the department just noticed is that in which were displayed not only every description of dairy utensils, but actually model dairies, in which these utensils were assigned their proper places. Messrs. Maguire and Son, Dawson-street, exhibited one of the latter—neat and compact. They also exhibited churns and butter-makers, German vats and cans, churns, scales, and, in short, every article which can possibly be required in the dairy. Messrs. Carson and Sons, Bachelor's-walk, exhibited a very admirable dairy for 40 cows, all the fittings being of the most perfect character. McKenzie and Sons, showed a varied collection of dairy utensils, and a collection of milk-carts, continental and Alderney churns. Medals were awarded to Messrs. Carson and Sons, and also to Messrs. Maguire and Son for their exhibits. The first prize for fresh butter was taken by Mrs. Handcock, Templeogue, Co. Dublin. The butter was, we understand, churned in eleven minutes in an "Eastwood" churn, supplied in 1868 by the agents here, Messrs. Edmundson and Co., Capel-street. In a lecture by Prof. Sheldon on Thursday, that gentleman expressed the opinion that "no butter in the world is equal to the Irish in substantial quality, in body, and in keeping qualities." This should be an encouragement to producers of this important article.

### DRUMCONDRA COMMISSIONERS.

AT the weekly meeting of this body on Friday, the chairman (Mr. I. J. Kennedy) said they had passed a resolution at the last meeting out of deference to the opinion of their chairman (Mr. Lombard), to defer the consideration of planting 100 trees in the township. Mr. Lombard stated that the trees when planted would cost 6s. each, but since then he (Mr. Kennedy) had ascertained that they could get these trees, three years' old, planted at 2s. 6d. each.

Mr. McCarthy said he would not like in any way to interfere with improvements in the township, but he had to draw the attention of the commis-

sioners to the uncleansed and dangerous state of the roads. Several gentlemen had complained of this, and he thought they should first see that the roads were properly cleansed and repaired before they thought of making boulevards. The Glasnevin-road ought at once to be repaired.

After some discussion the matter dropped.

Mr. Petit (secretary) read a communication from a number of landowners in the township, stating that they had been informed the board, in striking a rate for the supply of water to houses within the township, intended to assess the rate on the lands lying within the township, according to its rateable value. As owners and occupiers of land they protested in the strongest manner possible against such an assessment, and asked the commissioners to consider it in all its bearings before any proceedings were taken by the landowners to resist it.

The Secretary read the sections of the Townships Act referring to this subject, and it recited that all property in the townships should be assessed for the rate. He said it was the case in all the townships.

The Chairman did not think it was originally the intention to assess land.

Mr. McMullen said if the lands were not assessed they would have to strike another rate. This matter had already been considered by the Commissioners, and settled, and could not be altered.

Mr. McMahon said if the rate was pressed, and that it was illegal, the matter could be brought before one of the judges.

Chairman—We ought not to go so far as that.

Mr. McMahon—You have no power to do otherwise.

Mr. Martin thought counsel's opinion ought to be taken on the matter. He would therefore move that Messrs. Casey and Clay be instructed to take the opinion of Mr. Carton, Q.C., on the subject.

Mr. McMahon seconded the motion, which was carried unanimously.

After transacting some routine business, the commissioners adjourned.

### HOME AND FOREIGN NOTES.

**THE SURVEYOR OF STREETS.**—Mr. Lawless, Deputy Surveyor, has been re-elected, at a salary of £350 a year.

**THE "MANSION HOUSE."**—In view of a praiseworthy desire evinced by the incoming Lord Mayor (Mr. Edmund Dwyer Gray, M.P.) to properly entertain his guests during his year of office, he has called upon his Civic brethren to at once have erected a supper-room to accommodate say 500 persons, besides a cloak-room, in both of which the premises in Dawson-street are deficient. A wooden erection would, he thought, answer admirably. Several leases would shortly fall in, and then they would be able to expend some money in the keeping up of Civic dignity.

**A DOCTOR'S COMPLAINT.**—Dr. James Brennan writes thus to the Guardians of the Ballinasloe Union:—"The Kiltormer Dispensary is altogether unfit for the storage of medicine, as the windows are broken, and the roof so bad that the rain falls into the rooms! The grate is broken, and it is only with difficulty that a fire can be kept. My dwellinghouse is in a dilapidated condition, and most dangerous to health, both from dampness and smoke!" The board considered the matter most serious, and ordered the full committee of the dispensary to be summoned forthwith.

**ACCIDENTS.**—The new Town Hall at Kingstown, in course of erection by Messrs Meade and Son, was, on the evening of the 6th inst., the scene of an accident to one of the stone-cutters employed thereon. It appears that, when leaving off for the day, he got into the bucket used for hoisting materials by means of a steam crane, and the chain attached having snapped, he was precipitated from a height of some eighty feet, and frightfully mangled. On Wednesday night a mason, as he was proceeding homewards from Moira, County Down, fell into a quarry about 60 ft. deep, where he was found next morning, quite dead, of course. He leaves a wife and seven children.

**THE BUILDING BYE-LAWS.**—At a meeting of the Corporation, held on the 8th inst., the Town Clerk read a letter from the Secretary of the Royal Institute of the Architects of Ireland, forwarding a number of recommendations (see our last issue) in reference to the building bye-laws, drawn up by the City Engineer. Mr. Gray moved, and Mr. Gill seconded a motion, that the document should be forwarded to the City Engineer to report on. Mr. French moved as an amendment that the Institute of Architects should be requested to furnish the Council with 60 copies of this document. Mr. Callow seconded the amendment. It was

resolved that the report should be forwarded to the City Architect for report.

**HARD ON OUR CORPORATION.**—At a meeting of the Abbeyleix Board of Guardians, during a discussion on a motion proposing that the board should urge the Government to apply the Irish Church Surplus towards the relief of the poor-rates, Mr. Staples, who opposed the motion, said:—"I do think it would be a pity to introduce subjects of the kind into this board-room. I recently received from a friend of mine a letter asking me to bring this matter before the guardians, with the object of selecting some one to join a deputation to wait on the Chief Secretary, and I wrote to him the following reply:—"As you ask an answer, I give you the only one I can—that I should be very sorry indeed to bring such a subject before the Abbeyleix board, which is composed of amiable, business-like men, who do the business for which they meet, and no other, and have thereby kept themselves from falling to the level of the Dublin Corporation, as too many poor-law boards in the South of Ireland have fallen, making the discharge of public business impossible, and themselves supremely ridiculous. The question of the Church Surplus to which your circular relates is a question for Parliament, not for poor-law boards."

### TO CORRESPONDENTS.

**THE PASSING YEAR.**—As a lull to elsewhere, this issue concludes our twenty-first volume. There are many topics which we had hoped to touch upon before the close of this year, but the pressure on our space obliged us to postpone their consideration. They will not be forgotten in our new volume.

**THE PORT AND DOCKS BOARD.**—Communications in reference to this board are of too political a nature for our columns. We are at present devoting considerable space to the past work of the board or its predecessor, the Port and Harbour Improvement.

**A BUILOUT.**—The clauses would seem to press severely in some cases, but it would be difficult to meet every case. Unprincipled speculators must be stopped in their nefarious career.

Correspondents must not be too impatient. We cannot find room for all their communications. Patience is a virtue. W. J. (Cork).—Consult our advertising columns, or call to our office.

RECEIVED.—P. P.—J. C.—D. R.—Provincial Architect—J. B.—R. C. D.—A Workman—J. M. (Glasgow)—S. S. and Co. (London)—W. W. (ditto)—Fingal—E. C.—L. D.—C. E., &c.

### The Irish Builder.

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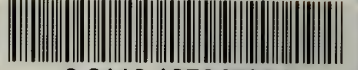








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